

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

 UNIVERSITÉ 1 FRERES MENTOURI-CONSTANTINE 1 UNIVERSITY

 FACULTY ARTS AND LANGUAGES

DEPARTMENT OF ARTS AND THE ENGLISH LANGUAGE



Research Skills Subject-matter (Lecture) for Second Year Master Students (Linguistics and Applied Language Studies)/Semester One

Lecture Submitted with Regard to obtaining the University Accreditation



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2020

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Objectives of Research Skills Lecture

1. Objectives of the Lecture

At the end of this course the student will be able to:

- Understand the whole scope of research philosophy.
- Know what is research.
- Know what are the general ways of writing research.
- Know what are the types of research and the manner used in developing each of them.
- Know what is the purposes of doing research.
- Know what is the research process (selecting a topic, identifying a research problem, conducting a literature search, stating the research questions and the hypothesis, determining the research design, determining the research method and the analysis procedure).
- Do research following the steps stated previously.
- Know about how to formulate the research hypothesis, variables, sampling and populations.
- Know how to plan and write a dissertation.
- Be able to use the MLA and APA styles accurately in their research.

2. Prior Knowledge

Students need to know:

- ❖ Basic notions in research methodology such as; method, methodology, research, design...
- ❖ How to write a research proposal and a research paper, and should be able to differentiate between them.
- ❖ How to make use of some research skills concepts such as; some research strategies and research tools.
- ❖ Basic styles of referencing.

Lesson One: Introduction to Research Methodology

1. What is Methodology?

With all due respect to many others before and after him we think the one and only **Godfather of methodology** was **René Descartes (1596–1650)**. In 1637 he wrote a slim manuscript called “Discourse on Methods”. In this landmark book (published in Latin in Holland give the limited freedom of expression he had in his own country at that time) he proposed a **four-step method**. These steps are based on **intuition, deduction, enumeration and reporting**. It takes little effort to recognise much of our contemporary approach to research in this method.

Methodology is, **broadly speaking, the way in which a researcher conducts research. It is the way in which he chooses to deal with a particular question** (which may consequently result in a problem definition). He also has to consider **the way in which he is going to deal with the people and establish his overall approach**, by choosing how he wishes to conduct the research. **The researcher may decide to create a questionnaire and send it to people in a given organisation or workplace. He can also opt to work in the organisation** (literally) in order to be able **to observe** the organisation as he collects data. Which method he selects depends both on the nature of the question, and on the view of what he considers (implicitly or explicitly) to be ‘good’ research. **This amalgam of (scientific) considerations and contextual conditions are shaped by personal preferences, previously referred to as the researcher’s basic approach.** There are two clear categories:

- The first researcher conducts research in the organisation by means of a well-defined research question. This question often appears to have a closed character. This form of research is characterised by research activities that are accomplished in a definite order of rank.
- The second researcher conducts research ‘with’ the organisation, often based on an open question. What needs to be examined exactly, let alone how it should be done, is not determined in advance. The most important element of research based on an open question is the ‘search behaviour’ of the researcher. Research questions are used as ‘road signs’ leading from one place to the next.

2. Methodology: Not a Map, But a Domain

Methodology is first and foremost associated with conducting research. **The etymological and traceable meaning of methodology** (deduced from Greek *methodos* = *meta hodos*) is ‘the way along which’, in other words aimed at following a certain route. In this case methodology implies: **the way (or route) the researcher will need to take in order to achieve a certain result (knowledge, insight, design, intervention, solution).**

For example, anyone who wants to travel from Paris to Rome can choose to go on foot, by horse, by train, by plane or just take the car. What is more, the means of transport can be changed along the way. Once on the road, unexpected developments (the train does not go any further) can make you change your original plans and force you to think of an alternative to continue on your way. This fundamental idea that **‘there are many roads that lead to Rome’**

indicates that there are choices within a specific methodology. Ideally, these choices should lead to a similar result in the end.

Methodology implies ‘. . . a system of methods and principles for doing something’ (Cobuild, 1987). As such a methodology is ‘empty’; it provides a map, a starting and finishing point, but not the directions for the actual trip through a certain area. ‘Doing something’ covers the methodology to travel, eat, pass an exam or create change. This indicates that methodology is something completely normal and convenient in all possible situations. Deliberately having a methodology for different situations, being aware of the construction of your own methodologies and how you will determine whether you have achieved your goal is, thus, very useful.

Methodology does not simply mean ‘conducting research’, but in fact specifies way of acting in a particular situation with a clear goal in mind. We have already used the expression ‘action reading’ for this process before. Although it is very helpful to know what methodology is all about, its daily use is not the focal point of interest. **The interest is on the use of methodology in conducting research. The basic objective is to show how to choose from different – existing – methodologies depending on the particular situation, problem or question.** What is also important is the way the researcher himself deals – or wants to deal – **with a particular research question. How do you view the question? What do you think when you look at it? Is it a question of gathering knowledge, of insight or of the way people view each other in an organisation? And what would you do about it? Only examine and then leave? Or would you provide recommendations for improvement as well? If so, what would your proposal be? Would you implement the proposal yourself or would you leave that to others? As a researcher you are supposed to deal with this question in such a way that you can explain how you have reached certain decisions.**

3. Method

Methods (also often and rather confusingly called methodologies in many textbooks) **indicate specific steps (or actions, phases, step-wise approaches, etc.)** that should be taken in a certain – eventually stringent – order during the research. It is obviously impossible to analyse data before it is available for example. Prior to the analysis you will need to consider the best way to collect the data. In this way, a method is adopted that can be compared to a railway timetable with arrival and departure times for all stations. Once the train has departed, it will pass all the stations in a fixed order. However, while it is unthinkable that stations will change places, methodologies for research are often not constructed quite as rigidly. However, the more concrete the methodology, the better the result.

However, the more open a question the more freedom the researcher has to create his methodology. Moreover, **various aspects will play a role depending on the situation (contextually or organisationally).** **What access do you have to existing or new information, to data sources? Who owns this information? Are you allowed to talk to people? Under which circumstances will these conversations take place? How about confidentiality and anonymity? How much time do you have for this research? What are**

the (implicit or explicit) expectations of the results of this research? Who will benefit from these outcomes and in what ways?

It is these kinds of questions that will occur before and during the research, which will partly provide direction to and shape the methodology you will use. Therefore, when you have to give your reasoning for the chosen methodology and methods it will appear that the context in which you conduct your research explicitly influences the final research design. It also becomes clear that the many issues at stake in your research (e.g., ethical, technical, contextual) can easily lead to sometimes almost unsolvable dilemmas. It is virtually impossible to solve these issues before the start of your research. Still, what you can do is treat them properly and in a transparent manner while carrying out your project.

4. Research Methods Vs. Research Methodology

There is a slight difference between research methods and research methodology although the majority use both of them to mean the same thing.

Research methods are the various ways, procedures, schemes, etc... used by researchers in research. They are essentially planned. They include the different approaches in order to help us collect samples, data, and to find solutions to problems.

On the other hand, scientific research methodology is a systematic way to solve a problem. It is the science of knowing how research is to be conducted. Thus, research methodology is the way by which researchers go about describing, explaining, and predicting their work. It is also defined as: the methods by which knowledge is gained. The aim behind research methodology is to give the research a work plan.

As a result, a research methodology helps us to provide a solution to a problem. However, research methods deals with the following:

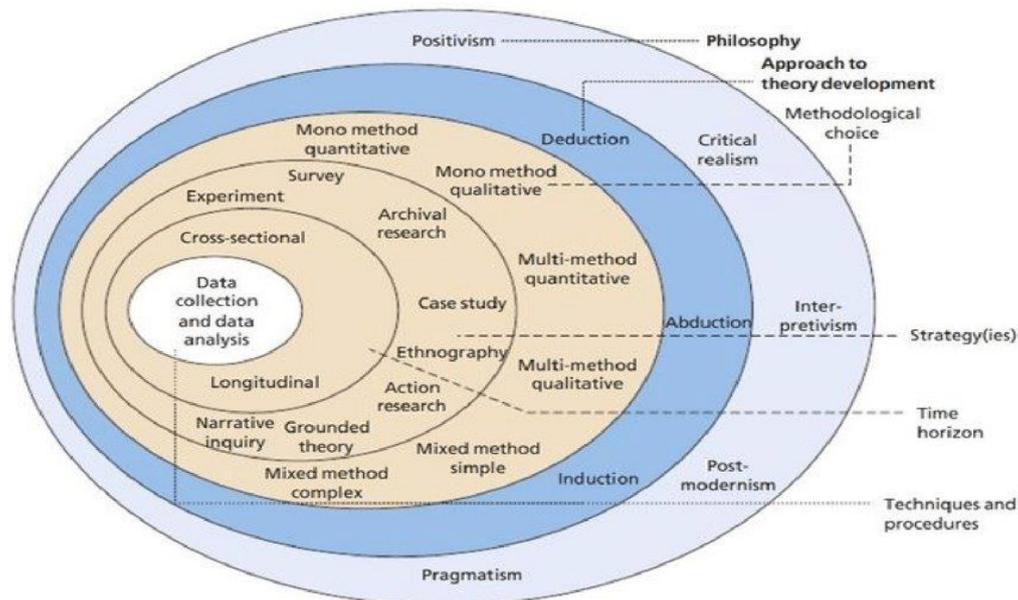
- ✚ The reason behind undertaking a particular research study,
- ✚ How the research problem is formulated,
- ✚ The types of data collected,
- ✚ The particular method which has been used,
- ✚ And why was a particular technique for analysing the data favoured than others (Rajasekar, Philolminathan, Chinnathambi, 2006, pp. 2-3).

In short, research methods or techniques refer to the methods the researcher uses in performing research operations. In fact, it encloses all the procedures and strategies that a researcher follows in conducting his research from the very beginnings such as; writing the research proposal until putting everything into practice and fulfilling the research project.

5. The Research Onion

Fig. 1

Saunders, Lewis & Thornhill (2012, p. 124)



The research onion consists of six main layers:

1. *Research philosophy* – forms a basis of the research by delineation of ontology – nature of reality, epistemology – nature, sources of knowledge or facts and axiology – values, beliefs and ethics of the research.
2. *Approach to theory development* – can be implied by the research philosophy on previous level and usually include: deduction – the research starts with an existing theory, then rising a question or hypothesis and data collection in order to confirm or reject the hypothesis; induction – the research starts with observation and data collection, moving to description and analysis in order to form a theory; abduction – observation of an empirical phenomena is followed by the research which comes up with a best guess or conclusion based on available evidence. Deductive approach is applied for existing theory testing, while inductive approach is commonly used in developing a theory or in fields with little researches on the topic. Abductive approach usually starts with a surprising fact and is moving between induction and deduction in order to find the most likely explanation.
3. *Methodological choice* – determines the use of quantitative and qualitative methods or various mixtures of both.
4. *Strategy* – to collect and analyze data: experiment, survey, archival research, case study, ethnography, action research, grounded theory, narrative inquiry.
5. *Time horizons*. This layer defines the time frame for the research – cross-sectional or short-term study, involving collection of data at a specific point of time; longitudinal – collection of data repeatedly over a long period of time in order to compare data.
6. *Techniques and procedures* include data collection and analysis – the use of primary/secondary data, choosing sample groups, developing questionnaire content, preparing interviews, etc.

The research onion, proposed by Saunders et al. (2016) is a tool which helps to organize the research and develop research design following the layers of the research onion step by step. However, the research onion model was primarily designed for business studies, therefore it would be incorrect to adapt this model “as is” for researching the future. The analysis of literature on future studies of methodology has revealed that futures studies is a specific research field as it deals with phenomena which are not actualized yet, thus it underpins specific ontological and epistemological assumptions which lead to the choice of strategies, techniques and methods different from ones used in business studies.

6. Adapting the Research Onion Model for Futures Studies

In order to adapt the research onion model, it is crucial to analyse and determine the appropriateness of the model for futures studies and make necessary logical corrections within six original layers of the model.

A critical overview of six research onion layers has led to discovery of one additional layer – Layer 2: Approaches to futures research, which could be logically included into original model thus forming a coherent research onion model for future studies. Altogether, seven main layers of the research onion for futures studies were distinguished: 1) research philosophy; 2) approaches to futures research; 3) approaches to theory development; 4) research strategy; 5) methodological choice; 6) time horizons; 7) techniques and procedures.

Layer 1: Research Philosophy

In order to address the matter of scientific basis of future studies, it is important to highlight the basic techniques of the research first. A classical research methodology is based on a certain philosophical theory which then implies strategies and techniques of the research (Nweke & Orji 2009; Saunders et al., 2016). From a historical point of view there may be distinguished two classical or mainstream – positivist and interpretivist, and two rather recent – pragmatist and critical realist, positions of scientific research philosophy (Mingers, 2006; Molis, 2008; Saunders et al., 2016).

1. *Positivism* – mainly reflects philosophical stance of a natural scientist. Ontology is based on objectivist assumptions that entities are observed, atomistic events, existing external to social actors, therefore only observation and empirical data may be referred to as “credible”. Knowledge is obtained by observation and finding event regularities, which are based on causal, law-like and functional relations.
2. *Interpretivism* – an approach based on subjectivist ontological assumptions that entities are constituted of discourse, thus existing or socially constructed reality may be only researched through social constructions as consciousness or language (Myers, 2008). Reality is socially constructed and constantly evolving; therefore, knowledge and facts are relative and subjective.

The strict dichotomy between positivist and interpretivist position is a matter of constant critics on the basis of distinction between natural and social sciences. Positivist philosophy admitting that entities such as ideas or social structures exist independently of human beings, does not take into account the role of individual in a social reality. Conversely, interpretivists claim that existence of the world, independent of human thought and perception is impossible.

In the middle of 1970's a new philosophy challenging ideas of positivism and interpretivism has emerged on the basis of Bhaskar's works.

Bhaskar proposed an idea of transcendental realism and critical naturalism, combined into a theory of critical realism. First of all, Bhaskar (2008) challenges the classical empiricism idea of atomistic events, being the ultimate object of knowledge and distinguishes two types of knowledge:

1. *Transitive* – knowledge as a product of social activity; changing objects of knowledge. Objects of such knowledge depend on human activity.
2. *Intransitive* – knowledge of things, not produced by men; relatively stable/unchanging objects of knowledge. Objects of such knowledge would remain exactly the same even if humanity ceased to exist. According to Bhaskar (2008) the existence of present, past and future does not depend on our knowledge or experience of it – real entities exist independently of events and events occur independently of experience, thus the domains of real, actual and empirical can be distinguished (Table 1).

Table 1.

Domains of Reality

	Domain of Reality	Domain of Actual	Domain of Empirical
Mechanisms	×		
Events	×	×	
Experiences	×	×	×

The core aim of science is to produce knowledge of mechanisms (which are intransitive objects, existing independently of men) and the statements (laws), describing these mechanisms. Traditional scientific approach is aimed at discovering the natural sequences, laws and causation mechanisms which then are tested by conducting an experiment in a controlled environment – relatively “closed system”. Traditional definition of causal laws based on Hume works implies that causation mechanism is based on a simple conjunction of events, where event 2 follows event 1, although such causation is true mostly for closed systems. The reality is complex and changeable, therefore is referred to as an “open system”, where event 2 does not always follow event 1 – the real world consists of actual, as well as non-actualized possibilities and non-manifested powers of existing structures and mechanisms within given environment. In this context causal laws are defined as *generative mechanisms of nature*, which can be determined within closed system by experimental activity and are efficacious outside closed system, therefore – *transfactual*. Causal laws are understood to operate as tendencies, for that they do not explain *what would happen* under certain circumstances, rather than *what is happening* in an unmanifested way.

According to Bhaskar (2008), social phenomenon is both – causal and interpretive in nature, thus critical realism in a certain way reconciles the two main ontological positions – positive and interpretive, providing a basis to bridge explanation and understanding. Empirical observation, however, cannot be the only basis for explanation – causality can be understood

only in regard to hidden, unobservable causal mechanisms, which are activated under certain conditions and these mechanisms or tendencies, whether actualized or not, may not be empirically observable (Welch, Piekkari, Plakoyiannaki & Paavilainen-Mantymaki, 2011). Causation cannot be reduced to the search for regularities due to the fact that relationship between cause and effect does not necessarily produce regularity, therefore development of causal explanations should be based on exploration of generative mechanisms (Danermark, Ekstrom, Jakobsen & Karlsson, 2002). Within the scientific research this position causes the change of focus – from researching events as such to investigation of mechanisms, producing these events. In case of futures research, the exploration of generative mechanisms is significant in the search for regularities, having potential to foster future events. Saunders et al. (2016) also admit, that choosing between positive or interpretive position may be unrealistic, thus other philosophical positions of scientific research are proposed in addition to the two offered above:

3. *Pragmatism* – based on assumption that within the research it is possible to adapt both positivist and interpretivist positions whichever works best for particular research question.
4. *Critical realism* – based on two ontological assumptions: 1) the world consists of real entities; 2) we perceive the sensations and images of real entities, not the real entities themselves (Saunders et al., 2016). Knowledge is obtained by discovering generative mechanisms.

Within the field of futures studies there exist various ways of understanding the future and its relation to the present and past. Kosow and Gaßner (2008), claim that from the present perspective future can be perceived in three different views: 1) first view – future is *predictable*, anything that is going to happen can be predicted; 2) second view – future is *evolutive*, purposeful control of future is impossible; 3) third view – future is *malleable*, therefore can be influenced to some extent by participating actors. Inayatullah, (2013) proposes quite similar distinction of three basic views of future: 1) *predictive* – assumes deterministic nature of future, therefore the future can be known; 2) *interpretive* – is aimed not at prediction, but insight, therefore is mainly based on interpretive analysis of different images; 3) *critical* – there is no one determined future, rather than one among many possible futures. It may be stated, that Kosow and Gaßner (2008) and Inayatullah, (2013) propose quite similar views of future, which may be linked to three positions of scientific research philosophy discussed above – positivism, interpretivism and critical realism:

1. Positivism

Assumes the *predictability* and *controllability* of future. Future prognoses are based on our knowledge of present and past – finding events regularities, based on causal, law-like and functional relations, enables precise calculation of future events by extrapolation.

2. Interpretivism

Assumes *unpredictable* nature of future. The future is perceived as random, chaotic and unpredictable chain of events, thus the control or prediction of future as such is impossible, knowledge of future can only be obtained through intuitive strategy.

3. Critical Realism

Assumes the *flexibility* of future. The future is real, although not manifested yet, it consists of multiple possibilities and actualizes through transformative events, therefore the future can be influenced (at least to some extent) by participating actors.

Patomaki (2006), Bell (2003), Heijden (2000) claim critical realist position provides rather distinct basis for futures studies, while List (2005) and Aligica (2011) reasonably notice that critical realist approach can be employed for explanation of possible future constraints.

On the basis of analysis of Patomaki (2006), Bell (2003) and Heijden (2000) critical realist ideas for futures studies, the most significant assumptions may be summarized as follows:

1. Reality can be divided into three domains (table 1) – the domain of real being the largest, the domain of actual and the domain of empirical being respectively the smallest, therefore there are much more real possibilities, than actual or empirically observed events even in closed systems. Knowledge about the world lies within the domain of real, therefore real world can be known.
2. Future as an entity is real, even though not manifested yet, consists of multiple possibilities, which actualize through different transformative events and nodal points, creating particular context and presupposing actions for certain possibilities realization.
3. Social reality is an open-system, containing both – observable, as well as non-observable components and dimensions, therefore precise scientific prediction as such is impossible. However, anticipation of future, based on observation of generative mechanisms can still take place.
4. The knowledge of the future is possible on the basis of logical deduction from the past and the present – observation of unfolding events create conditions to discern a certain trend, which lead to exploration of its causal mechanisms and extrapolation of the trend.
5. Analysis of possible futures creates different narratives of how the future may unfold. The complex of these narratives may constitute a grand narrative of the possibilities for researched phenomenon.
6. Futures studies are focused on on-going processes and actions, rather than on past events, therefore futurologists explain the development of various social structures, specify the boundary conditions and construct a narrative up to a certain point in the future, creating an explanatory history and future scenarios.

All things considered; it can be argued that critical realist philosophy provides rather distinct theoretical framework for futures studies. The idea of multiple futures, which are real, but not manifested yet, shifts the focus from precise scientific prediction of the future to exploration of causal mechanisms and extrapolation of trend by construction of narratives up to a certain point in the future and creating possible development scenarios.

On the basis of ontological classification of futures studies stated above it can be concluded that *positive* philosophy has a potential to provide theoretical ground for futures studies in areas where obtaining tangible data is possible, for instance in fields such as demography, economic development. Interpretive position is based on understanding the

spectrum of images of the future, rather than on scientific forecasting, therefore it aims to provide an insight not a prediction. *Critical realism* on the other hand, assumes the possibility of different futures which can be influenced from present at least to some extent, thus it can be employed as ontological position for scenario construction and analysis in areas such as institutions, culture, politics.

Layer 2: Approaches to futures research

List (2005) distinguishes two approaches of studying the future: quantitative forecasting is based on mathematical operations such as extrapolation, econometric modelling, etc.; *alternative futures* refer to idea of multiple futures and is based on methods of foresight. Inayatullah (2013) distinguishes four main approaches of futures studies: *predictive* – based on empirical sciences; interpretive – understanding competing images of the future; *critical* – focused on asking who benefits from certain future; *participatory action learning/research* – focused on developing the future. By the way of summarizing these ideas, Kosow and Gaßner (2008) claim that from a historical point of view approaches of futures studies have gradually evolved from forecasting, based on quantitative techniques, towards *foresight* – based on qualitative/combined techniques, being more appropriate for studying complex futures. The first approach – *forecasting*, is mainly applied in areas where tangible quantitative data is available, e.g. demography, economic development, while the second approach – *foresight*, leading to a complex cognitive-analytical view of multiple futures, is used in areas such as institutions, culture, politics.

5.1.Layer 3: Approaches to theory development

Saunders et al. (2016) distinguish three main approaches to theory development – *deductive*, *inductive* and *abductive*. Deductive research logic is referred to reasoning moving from general rule to a specific law-like inference and is usually used for theory testing. Inductive reasoning is a way of theory building, starts with specific observation on the basis of which a general rule is formulated. According to Kuosa (2011), in futures studies inductive reasoning is mainly associated with “intuitive” techniques, while deductive reasoning, based on physical argumentation, is aimed to control functions and direct knowledge.

Kuosa (2011) also argues that one of the most significant errors in contemporary futures studies is the demand to control or exactly predict the future, because future as an entity is changeable and unpredictable. A failure to provide “exact” prediction of future is often considered by contemporary scientists as a lack of scientific basis of futures studies *per se*. However, failure in real life is a common phenomenon which is also a part of scientific knowledge, therefore it is important to accept failing as a part of scientific approach. Although both deductive and inductive inferences are widely used in contemporary futures studies, Kuosa (2011) reasonably notices the shift towards abductive reasoning. According to Paavola, Hakkarainen and Sintonen (2006) *abductive* reasoning is a form of inference, starting with observation of clue-like signs, which provide the basic notion for further research. Thus, *abductive inference is a best guess or conclusion based on available evidence*.

Referring to Kuosa (2011) three research approaches may be distinguished for futures studies: 1) *deductive* – aimed to direct knowledge and functions control, involves the use of

physical argumentation; 2) *inductive* – aimed to control information, involves the use of structural and categorization argumentation; 3) *abductive* – aims to identify structures, connections, contexts and constraints, involves the use of cognitive argumentation.

Layer 4: Research strategy

Presenting research strategies, Saunders et al. (2016) suggests experiment, survey, archival research, case study, ethnography, action research, grounded theory and narrative inquiry to be the main strategies for research. However, research strategies in the field of futures studies can be distinguished in a slightly different manner.

Research strategy can be referred to as a general way which helps the researcher to choose main data collection methods or sets of methods in order to answer the research question and meet the research objectives. List (2005) distinguishes two main types of research methods in futures studies – *quantitative and qualitative*. Kosow and Gaßner (2008), Puglisi (2001) besides quantitative and qualitative distinguish *explorative* and *normative* groups of research methods. Explorative methods are aimed at studying multiple futures and exploration of possible developments, while normative methods aim to shape the desirable/undesirable future and build the pathways or chain of events for reaching it. In futures studies all these groups of methods may be used for reaching the specific research objectives – *to describe* the exact patterns of future development, what future will be like; *prescribe* the set of actions in order to reach desirable future; *explore* the possible development of future events. Therefore, the three main research strategies may be distinguished – *descriptive, normative* (prescriptive) and *explorative*.

Layer 5: Methodological choice

Saunders et al. (2016) define research choices with reference to the use of quantitative and qualitative research methods, as well as the simple or complex mix of both or the use of mono methods. Qualitative research methods involve numbers and mathematical operations, while qualitative methods imply collection of a vast descriptive data. *Mono method* is used when the research is focused either on quantitative or qualitative data gathering; *mixed methods* – quantitative and qualitative methods used within the same research in order to achieve different aims and offset the constraints of the use of single method; *multi-method* choice undermines the use of both, qualitative and quantitative methods, although the research is based on one of them, while the other method is auxiliary or supplementary.

Such presentation of research choices is also relevant to futures studies, according to Saleh et al., (2008) the scope of methods can also be divided into quantitative methods, such as time series analysis, causal analysis, trend analysis, etc., as well as qualitative – Delphi surveys, futures wheel, environmental scanning, etc. There are also methods, that are successfully employed as both quantitative and qualitative – scenario construction, modelling.

Layer 6: Time horizons

Time horizons in futures studies usually refer to periods to be studied or chronological horizon of varying breadth. Kosow and Gaßner (2008) distinguish three basic time horizons: *short-term* – up to 10 years; *medium-term* – up to 25 years; *long-term* – more than 25 years.

Kosow and Gaßner (2008) also distinguish static observations from a point in time in future, usually associated with normative strategies as an alternative time horizon. Such *point of retrospective* is usually used for “static” or “end-state” scenarios construction.

Layer 7: Techniques and procedures

Following the research onion step-by-step, the final layer – techniques and procedures, moves the research design towards data collection and analysis. All previous choices determine the type of basic data collection and analysis procedures, which will help to answer the research question. Construction of Research Design Using Research Onion for Futures Studies The construction of research design in futures studies may be based on the concept of research onion, proposed by Saunders et al. (2016). After adapting the concept for futures studies the research onion may be presented as a system that integrates certain theoretical knowledge already developed within the field of futures studies and can be summarized by seven layers (Figure 2).

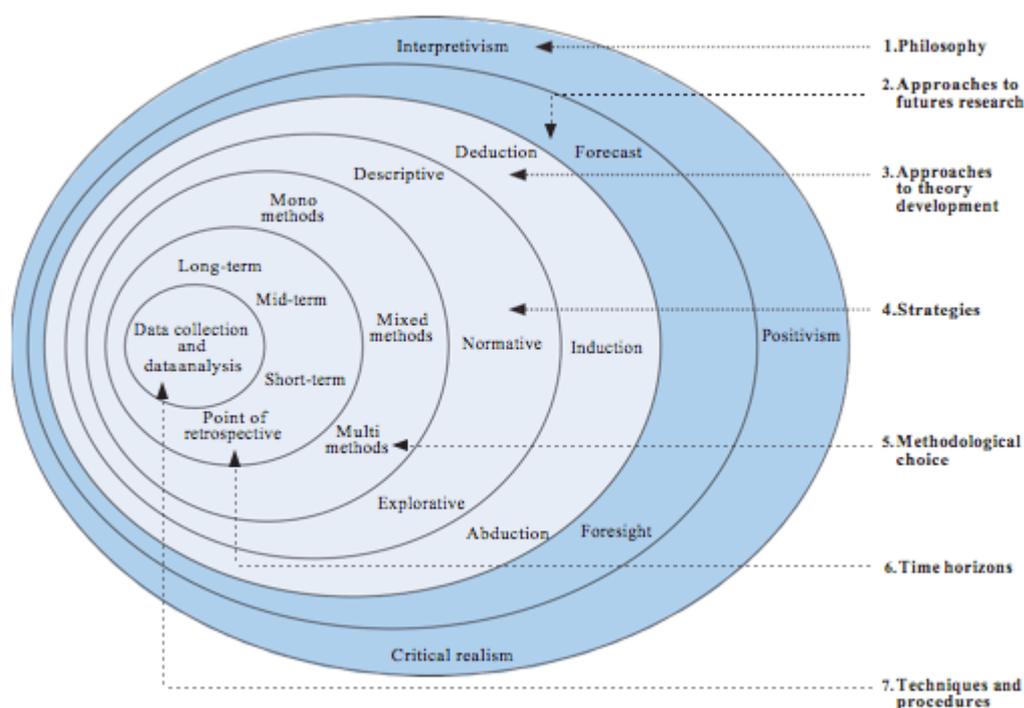


Figure 2. Research onion for futures studies
Source: author following Saunders et al. (2016)

Choosing the research methodology and building up a research design in future studies may be carried out following seven steps corresponding the seven layers of the research onion for futures studies:

6. Philosophy

Choosing philosophy in futures studies may be complicated due to the fact that there is no empirical evidence of the future as such. In order to choose an appropriate philosophy, it is important to determine the operational field of the research and available data sources. *Positivism* may be chosen as the main philosophical stance for the research where tangible quantitative data is available, which makes the basis for “calculating” the future and make exact

predictions, usually in fields such as demography, economic development. If the research will focus on the use of qualitative data which is often the case, *interpretivism or critical realism* may be chosen as the main philosophy. *Interpretive* position can be chosen if the research would mainly focus on construction of futures narratives and understanding the spectrum of images of the future to provide an insight. *Critical realist* position assumes the possibility of different futures which can be influenced from present at least to some extent, thus it is often used for scenario construction in areas such as institutions, culture and politics.

7. Approaches to Futures Research

The second step is to choose the right futures research approach. Positive philosophical stance is usually followed by forecast approach. Forecasting is based on mathematical operations such as extrapolation, econometric modelling and is aimed at discovering the exact future events. Foresight is based on qualitative/combined techniques and is used for studying a complex view of multiple futures.

8. Approaches to Theory Development

Choosing the right approach also depends on chosen philosophy and research approach – *deductive* theory development approach may be associated with forecast, as deductive reasoning leads to certain conclusions which are logical necessities and developed theory is tested or verified by data collection. *Inductive* and *abductive* approaches start with data collection and then move to development of a clear theoretical position. According to Patokorpi and Ahvenainen (2009) *deductive* and *inductive* approaches in futures studies are based on projection from past probabilities, whereas *abductive* approach focuses on discovery of “weak signals”, which are the first symptoms of change. Abductive approach is mainly applied to draw a conclusion from low knowledge (Patokorpi & Ahvenainen, 2009).

9. Strategies

Descriptive strategy may be associated with forecasting approach and deductive reasoning as it primarily aims at exact description of future events. Normative strategy is aimed at exploring what the future should or should not be like and to search for the ways of reaching it. Explorative strategy is aimed at the study of multiple futures and exploration of possible developments.

10. Time Horizons

Depending on the objectives of the research, *long-term*, *mid-term*, *short-term* future as well as *point of retrospective* may be selected as research time horizon.

11. Techniques and Procedures

At this step a research tool such as questionnaire or interview is constructed in a way it fits all choices, made within previous layers.

12. Characteristics of an Investigator

A good researcher should possess the following qualities:

1. He should have the full understanding about the functions and activities of his job.
2. He should have the reflective thinking about various dimensions of his job activities.

3. He should be sensitive towards his job. A sensitive person can perceive the problem. Most of the teachers are problem blind because they are not sensitive towards the job.
4. He should be creative, insightful and objective. These abilities are essential in formulating the action hypotheses for his problem.
5. He should have the knowledge and training of action research.
6. He should have the scientific attitude for studying and observing things.
7. He should have knowledge and skill of measuring instruments and elementary statistics.
8. He should be open-minded so that he can discuss his problems with colleagues and experts of the field to have correct picture of the problem.
9. He should be pragmatic when designing the project in terms of time, energy and money.

13. The Research Pyramid

Once starting his research, the researcher can often encounter problems related to what choices he has to make in order to better investigate the question at hand. Below is a representation of four levels that help structuring the process of decision-making. Such levels constitute what is labelled “research pyramid”. The latter is what contributes to define the research behaviour, and then to provide clear illustration to the researcher’s reasoning and actions throughout his study. Each level of the pyramid relates to the one before it, and each is briefly explained after the following figure:

Fig. 3

The Research Pyramid



The research paradigm: how reality is viewed by the researcher whose basic approach is what expresses such paradigm.

The research methodology: this step expresses the way the researcher is going to structure his exploration.

The research methods: they represent the researcher’s actions to investigate the research question.

The research techniques: they represent the instruments the researcher uses throughout his actions to collect and analyse data.

Something important to say here is that such a pyramid really helps making the researcher's actions transparent and reasonable, as it reflects his "attitude" that would bring about his "research behaviour".

Conclusion

Within the past few decades' futures studies have developed into a scientific approach. Distinct methods create a theoretical basis for studying the future, however methodological uncertainty and chaotic nature of modern social reality does not add to the coherence of futures studies. In this situation the research onion for futures studies can serve as a heuristic approach for building up methodology and developing research design.

The research onion for futures studies, however, does not aim to become "the one and the only" approach for developing the research design, on the contrary – it aims to bring the general notion on the use of existing methodologies and approaches developed within the field of futures studies and serve as a guide for futures studies researchers and practitioners. The research onion for futures studies offers a flexible model of methodology development as it enables the researcher to choose most suitable theories or practices within existing layers in order to answer the research questions.

The presented model may be considered as a process guiding step-by-step towards construction of theoretical framework of the research, which helps to ensure the consistency between chosen tools, techniques and underlying philosophy, thus leading to a construction of a research design in coherent and logical manner.

Research is a point of view, an attitude of inquiry or a frame of mind. It asks questions which have hitherto not been asked, and it seeks to answer them by following a fairly definite procedure. It is not a mere theorising, but rather an attempt to elicit facts and to face them once they have been assembled.

According to **Francis G. Cornell**:

In social studies, teachers, administrators, or others engage in 'Research' when they systematically and purposefully assemble information about schools, school children, the social matrix in which a school or school system is determined, the characteristic of the learner or the interaction between the school and pupil.

C.C. Crawford writes that:

Research is simply a systematic and refined technique of thinking, employing specialized tools, instruments, and procedures in order to obtain a more adequate solution of a problem than would be possible under ordinary means. It starts with a problem, collects data or facts, analysis these critically and reaches decisions based on the actual evidence. It evolves original work instead of mere exercise of personal. It evolves from a genuine desire to know rather than a desire to prove something. It is quantitative, seeking to know not only what but how much, and measurement is therefore, a central feature of it.

P.M. Cook gives a very comprehensive and functional definition of the term research, "Research is an honest exhaustive, intelligent searching for facts and their meanings or implications with reference to a given problem. The product or findings of a given piece of research should be an authentic, verifiable and contribution to knowledge in the field studied."

Three characteristics of research can be seen to distinguish it from gaining knowledge purely by experience or reasoning:

- a) Gaining experience is an uncontrolled and haphazard activity, while research is systematic and controlled based on the inductive-deductive model.
- b) Reasoning can operate in an abstract world, divorced from reality, while research is empirical and turns to experience and the world around us for validation.
- c) Unlike experience and reason, research aims to be self-correcting. The process of research involves rigorously testing the results obtained, and methods and results are open to public scrutiny and criticism.

In sum, "Research is a combination of both experience and reasoning and must be regarded as the most successful approach to the discovery of truth" (Cohen and Manion, 2000, p. 5).

One thing that we have to pay attention to in research is that the heart of the research is not on statistics, but the thinking behind the research. How we really want to find out, how we build arguments about ideas and concepts, and what evidence that we can support to persuade people to accept our arguments.

3. Specific Characteristics of Research

Research using the scientific method displays six characteristics which distinguish it from other methods of enquiry:

1. *It is generated by a question.* We are surrounded by unanswered questions, unresolved problems, with conjecture and unproven beliefs. A questioning mind is the precondition for research. Why, how, when do things happen? What do events mean? What caused them? All these are questions which can generate research activity. Such a question is often referred to as the research problem.
2. *It necessitates clarification of a goal.* Without a clear statement of the objectives and what is intended to be done, the research cannot be successful.
3. *It entails a specific programme of work.* Research needs to be carefully planned in order to achieve its objectives and reach conclusions.
4. *It aims at increasing understanding by interpreting facts or ideas and reaching some conclusions about their meaning.* The significance of facts or ideas depends on the way in which the intellect can extract meaning from them.
5. *It requires reasoned argument to support conclusions.* In order to communicate an ordered sequence of ideas, a clear logical argument is required.
6. *It is reiterative in its activities.* Advances in knowledge and interpretations of facts are based on previous knowledge, which, in turn, is expanded by the advances. Then resolution of research problems often gives rise to further problems which need resolving.

In addition, research often:

- ❖ divides the principal question or problem into more practicable sub-questions or problems. Problems are often too large or abstract to examine as a whole. Dividing them into component parts (sub-problems) enables them to be practically investigated.
- ❖ is tentatively guided by assertions called hypotheses (informed guesses or tentative assertions). Testing these hypotheses provides a direction for exploration.
- ❖ requires measurable data in attempting to answer the question which initiated the research.

4. Types of Knowledge that Research Contributes to in Education

Gall, Borg and Gall (1996) proposed four types of knowledge that research contributed to in education as follows:

- ▲ *Description:* Results of research can describe natural or social phenomenon, such as its form, structure, activity, change over time and relationship to other phenomena. The descriptive function of research relies on instrumentation for measurement and observations. The descriptive research results in our understanding of what happened. It sometimes produces statistical information about aspects of education.

- ▲ *Prediction*: Prediction research is intended to predict a phenomenon that will occur at a time Y from information at an earlier time X. In educational research, researchers have been engaged in:
 - Acquiring knowledge about factors that predict students' success in school and in the world of work
 - Identifying students who are likely to be unsuccessful so that prevention programmes can be instituted.
- ▲ *Improvement*: This type of research is mainly concerned with the effectiveness of intervention. The research approach includes experimental design and evaluation research.
- ▲ *Explanation*: This type of research subsumes the other three: if the researchers are able to explain an educational phenomenon, it means that they can describe, can predict its consequences, and know how to intervene to change those consequences.

5. What are the Purposes of Research?

The research purpose is a statement of "why" the study is being conducted, or the goal of the study. The goal of a study might be to identify or describe a concept or to explain or predict a situation or solution to a situation that indicates the type of study to be conducted (Beckingham, 1974).

Research is not confined to science and technology only. There are vast areas of research in other disciplines such as languages, literature, history and sociology. Whatever might be the subject, research has to be an active, diligent and systematic process of inquiry in order to discover, interpret or revise facts, events, behaviours and theories

In an applied research one solves certain problems employing well known and accepted principles and through the application of scientific procedure. Research is done with the help of study, experiment, observation, analysis, comparison and reasoning.

As you probably already know, there are many reasons why research is done. But, what are its purposes? Why bother with all the different styles, techniques, experiments and measurements?

The **prime objectives** or purposes of research are:

- (1) to discover, verify, and test new facts.
- (2) to analyse a phenomenon by identifying the cause and effect relationship.
- (3) To gain familiarity with a phenomenon or to achieve new insights into it. (Studies with this object are termed as exploratory research studies where a researcher has an idea or has observed something and seeks to understand more about it.

To make this a little more understandable, imagine you are blindfolded or placed into a room without light. You are not told if something is in the room, but you have a suspicion there is something in there. You shuffle out slowly into the room, exploring with the tips of your fingers until you find something.

- (4) To portray accurately the characteristics of a particular individual, situation or a group. (Studies with this object in view are known as descriptive research studies which focuses more on the “what” of the research subject rather than the “why” of the research subject for example conducting a research on the amount of time students use on social media.
- (5) To determine the frequency with which something occurs or its association with something else. (Studies with this object in view are known as diagnostic research studies which are more directly concerned with causal relationships).
- (6) To test a hypothesis of a causal relationship between variables.

(Such studies are known as hypothesis-testing research studies).

And thus, the purpose of research is really an ongoing process of correcting and refining hypotheses, which should lead to the acceptance of certain scientific truths.

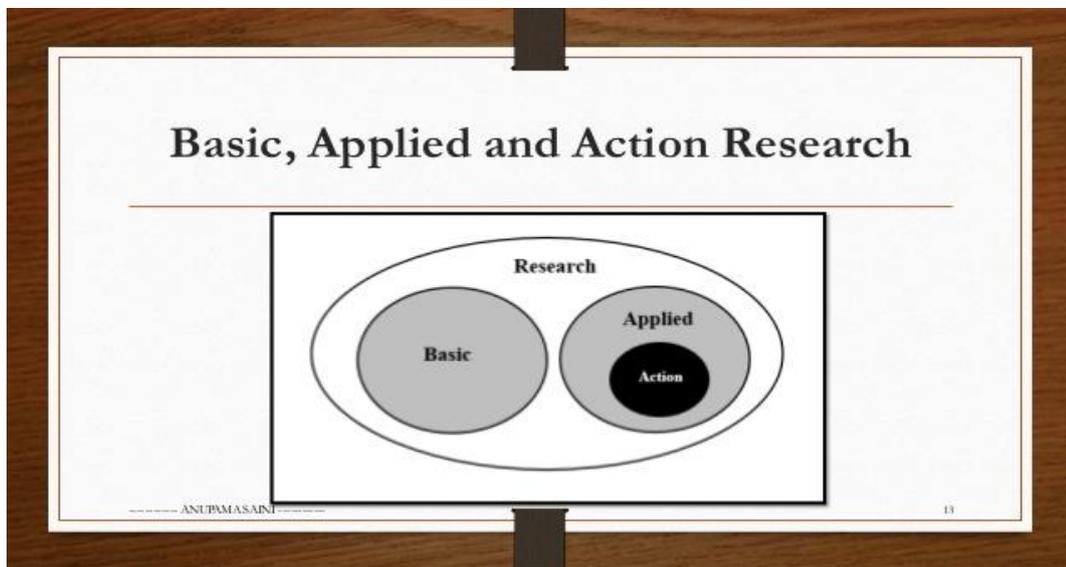
Patton (1990) pointed out the importance of identifying the purpose in a research process. He classified four types of research based on different purposes:

- a) **Basic Research:** The purpose of this research is to understand and explain, i.e. the research is interested in formulating and testing theoretical construct and propositions that ideally generalise across time and space. This type of research takes the form of a **theory that explains the phenomenon under investigation** to give its contribution to knowledge. This research is more descriptive in nature exploring what, why and how questions. Some examples of basic research in psychology may include the following:
 - An investigation looking at what whether stress levels influence how often students engage in academic cheating.
 - A study looking at how caffeine consumption impacts the brain.
 - A study assessing whether men or women are more likely to suffer from depression.
- b) **Applied Research:** The purpose of this research is to help people understand the nature of human problems so that human beings can more effectively control their environment. In other words, this type of research **pursues potential solutions to human and societal problems**. This research is more prescriptive in nature, focusing on how questions. Examples are as follows:
 - Persuasion of individuals.
 - Interventions for specific child behaviours.
 - Ways to manage schizophrenia.
 - How to cure Obsessive Compulsive Disorder.
 - Ways to market products.
 - Should pilots be armed?
 - Has U.S. policy contributed to terrorism?
- c) **Evaluation Research (summative and formative):** Evaluation research studies the processes and outcomes which aim at an attempted solution. The purpose of formative research is to improve human intervention within specific conditions, such as activities, time and groups of people; the purpose of summative evaluation is to judge the

effectiveness of a programme, policy, or product. Examples may be summarised in the following questions:

- How satisfied are you with our product?
- Did the program produce intended outcomes?
- Has the program increased the knowledge of participants?
- Were the participants of the programme employable before the course started?

d) **Action Research:** Action research aims at solving specific problems within a programme, organisation, or community. Patton (1990) described that design and data collection in action research tend to be more informal, and the people in the situation are directly involved in gathering information and studying themselves. For **example?** individual **action research** involves working independently on a project, such as an elementary school teacher conducting her own, in-class **research** project with her students.



6. Classification of Research

Research exists along a complex continuum of purposes and methods. Highly theoretical, decontextualized, or abstract research, often described as basic research or “inquiry for conclusion,” resides at one end of the continuum. This type of research (frequently based upon the scientific method) evolved from the Humboldtian traditions of the nineteenth century German university and is nurtured and sustained by enduring cultural and professional norms and traditions of the academy. It is designed to add an organised body of scientific knowledge and does not necessarily produce results of immediate practical value.

For over one hundred years, the freedom to create new knowledge has become a universally accepted moral and professional imperative among university faculty members. The imperative to create knowledge is so great that it drives workplace decisions and policies relating to employment, retention, and promotion of faculty members. However, from the practitioners’ perspective, basic research is essentially knowledge for knowledge’s sake, and not information that contains much practical relevance. Nevertheless, an enduring question that

continues to stimulate debate among academics and practitioners is whether the primary role of research should be to provide information or to produce change.

On the other end of the continuum is applied research or “inquiry for decision.” Its primary purpose is not to generate new epistemologies and theoretical propositions, but to guide action. Applied research is fluid, contextual, adaptive, and iterative. It looks for solutions, not questions— answers, not propositions. Moreover, it seeks to provide practitioners with immediate and concrete knowledge, and it seeks to directly influence human behaviour. Understandably, this is the research of greatest interest and relevance to practitioners.

Many contemporary scholars and policy makers consider the research continuum as a hierarchy of knowledge that exists on a vertical, rather than horizontal, plane. This is clearly the dominant perspective of federal and state policy makers today. Research crafted through rigorous scientific and analytic methods is located at the top of the hierarchy. The outcomes of such research are considered to be highly accurate, reliable, and applicable to large populations. In fact, experimental research using samples of randomly selected subjects is considered by many to be the “gold standard” today in the field of education.

7. Kinds of Research

A. On the Basis of Objectives of Research

On the basis of objectives of research, it is of two types: fundamental research and action research.

B. On the Basis of Approach to Research (Time Horizon)

On the basis of approach to Research, it is of two types: longitudinal research (like historical research, case study) and cross-sectional research (like experimental research, survey research).

C. On the Basis of Precision in Research Findings

On the basis of precision (accuracy), the research is either experimental research or non-experimental research. Experimental research is precise while non-experimental is not.

D. On the Basis of Nature of Findings

On the basis of findings, Research is explanatory research (such research explains theories, laws and principles) and descriptive research (is more concerned with facts).

E. According to National Science Foundation

The National Science Foundation formulated a three-fold classification of research:

- **Basic research:** Those researches which embrace origin or unique investigation for the advancement of knowledge.
- **Applied research:** It may be characterized as the utilization in practice.
- **Development research:** It is the use of scientific knowledge for the production of useful materials, devices, systems, methods for processes excluding design and production engineering.

F. Another Classification

- **Ad hoc research:** it is the class of inquiry used for a purpose alone and special.
- **Empirical research:** Empirical research is that which depends upon the experience or observation of phenomena and events.
- **Explained research:** Explained research is that which is based on a theory.
- **Boarder line research:** Boarder line research is that which involves two main branches of science. For example, study of public-school finance.

Lesson Three: Steps of Doing Research

1. What is the Research Process?

Gall, Borg, and Gall (1996) described the following stages of conducting a research study:

1. Identify a significant research problem: in this stage, find out the research questions that are significant and feasible to study.
2. Prepare a research proposal: a research proposal usually consists of the sections including introductory, literature review, research design, research method, data analysis and protection of human subject section, and timeline.
3. Conduct a pilot study: the purpose is to develop and try out data-collection methods and other procedures.
4. Conduct a main study.
5. Prepare a report.

Gall, Borg, and Gall (1996) also explained that these five stages may overlap or occur in a different order depending the nature of the study. Qualitative studies which involve emergent research design may gather and analyse some data before developing the proposal, or a pilot study can be done before writing a research proposal or not at all.

Anglin, Ross, and Morrison (1995) took a closer look at the stages of identifying a research problem and preparing the research proposal. They advised a sequence of planning steps:

✧ **Select a Topic**

Research requires commitment. As a researcher, you want to make sure you are doing something that you have a great interest in doing.

✧ **Identify the Research Problem**

Based on your own understanding and interest of the topic, think about what issues can be explored? Sometimes, a research problem cannot be immediately identified. But, through reviewing the existing literature and having continuous discourse with peers and scholars, the research problem will start take its shape.

✧ **Conduct a Literature Search**

Reviewing literature has two major purposes: one is to build up the researcher's knowledge base of the topic under exploration for a deeper understanding, and the other is to ensure the significance of the research. The researcher needs to make sure how the research will be able to contribute to the knowledge in the related field compared with the existing research literature.

✧ **State the Research Question**

The research problem will evolve during your pursuing knowledge base through reviewing literature and discourse with peers and scholars. To specify what questions your research study wants to answer helps to provide the basis of planning other parts of your study, e.g. the research design, the methods for data collection and analysis.

Table. 2

Experimental/Positivist Study	Correlational Study	Qualitative/Naturalist Study
<ul style="list-style-type: none"> • Questions about whether a certain instructional method or strategy improve a certain skill or learning outcome • Questions about whether a certain student characteristics have effects on a certain skill or learning outcome, or whether the characteristics interact with the instructional strategy or method to affect learning of a certain skill or cognitive process 	<ul style="list-style-type: none"> • Questions about whether two or more variables are related to each other? Those questions intend to use or control one variable to predict a future performance of a particular variable 	<ul style="list-style-type: none"> • Questions to generate a theory to describe certain patterns of interaction or process of an observed phenomenon • Questions about lived experience of research participants • Questions about the cultural patterns or social patterns in the classroom

✧ **Determine the Research Design**

The intention of the research study is to verify a causal relationship between certain variables, use an experimental design; if the intention of the research study is to find out how variables relate to one another, use a correlational design; if the intention of the research study is to describe and understand a particular social condition/pattern and meaning of a social experience, conduct a qualitative study.

✧ **Determine Methods**

Three major elements in the research study need to be considered: participants, materials, and instruments.

✚ **Participants:** It concerns whom to study. For experimental studies, the researcher needs to consider statistical sampling to make sure that sample is representative of the population, e.g. techniques of random sampling and stratified sampling. For qualitative research, purposeful sampling is the major principle. The selection of individuals, groups, or cases depends on how the characteristics, or properties of the individuals, groups, or cases will best inform the researcher with the focus of what is under investigation.

✚ **Materials and Instrumentation:** For experimental research, operationalisation of the variables is the focus, i.e. what are different treatment conditions, and how to measure the dependent variables. The researcher has to consider issues about the reliability (the consistency of the test), and validity (whether the test is testing what is meant to test) of the measurement. The design of the experimental conditions has taken the threats of the internal and external validity into account. The researcher wants to make sure that the establishing of the causal relationship is not influenced by other

factors than the controlling factors, and the researcher needs to consider to what extent the results of the research can be generalised to the population beyond the sample under study.

For qualitative research, the issues are the sources of data, where the researcher can find the information and what methods the researcher can use to get the information. Qualitative research usually focuses on the verbal information gathered from the interviews, observations, documents or cultural artefacts. The very distinctive feature about the qualitative research is that the researcher is part of the instrument. The recognition of this researcher's subjective interpretation of the information yields the process of triangulation, which emphasises use of multiple sources, methods, investigators, and theories to ensure the credibility of the research.

✚ **Procedures:** A procedural planning of how to get approval from IRB, how to get entry to research participants or to the field, how to implement the experimental treatment or to schedule observations and interviews, and how to prepare for write-up. A general outline of the process and a timeline will facilitate the research progress.

✂ Identify Analysis Procedures

Different research questions and different research designs entail different analysis method to take. Experimental design employs statistical analysis to give statistical descriptions of the groups in terms of different independent variables and dependent variables, and to determine the significance of the differences whether the dependent variables are caused by the independent variables. On the other hand, qualitative design employs semantic analysis to identify themes, categories, processes, and patterns of an observed phenomenon, and provides rich descriptions of the phenomenon in order to develop a deeper understanding of human systems.

2. Detailed Steps to Follow

It is important to go through all the steps which are operational in nature by following a logical sequence, and detailing the various methods, and procedures in a simple step by step manner.

Phase 1: Deciding What to Research

Step 1 Formulating the Research Problem

Formulating a research problem is the first and the most important step in the research process.

- A research problem identifies your destination: your supervision usually should tell you what you intend to research.
- The more specific and clearer the better you are, as everything follows which means every part of your research should be specific search as the study design, measurement procedures, sampling strategy, frame of analysis and the style of writing of your dissertation
- The main function of formulating a research problem is to decide what you want to find out about.

- Broadly speaking, any question that you want to answer and any assumption that you want to investigate can become a research problem for your study. However it is important to remember some questions may be extremely difficult study.

It is equally important to identify any gaps in your knowledge of relevant disciplines.

Phase 2: Planning a Research Study

Step 2 Conceptualising a Research Design

First of all, you need to know what is a research design.

- A research design is a structure and strategy of investigation so conceived as to obtain answers to research questions on problems. In other words, a research design is a plan that is adopted by the researcher to answer questions. You should not be confused between study design and the research design. Note that the study design is one part of the research design.
- Select or develop the design that is most suitable to your study.
- You must have strong reasons for selecting a particular design.

Phase 3: Constructing an Instrument for Data Collection

Anything that becomes a means of collecting information for your study is called “a *Step 3* research tool” or “a research instrument” for instance, observation, interviews, questionnaires.

- The construction of a research instrument is the first “practical step”
- In carrying out a study, but you need first to decide how you are going to collect data for your study.
- If you are planning to collect data specifically for your study (primary data) you need either to:
 1. construct a research instrument
 2. or select one that has already been constructed

If you are using (secondary data) (information already collected) you will need to identify what information is needed and in order to do so, you need to go through the same process as for (primary data)

Collecting Data (Primary Resources)

- Observation
- The interview
- Questionnaire

Step 4 Selecting a Sample

First, there is something that we call population which is all of the entities that are relevant for your research.

- if your population is small you may conduct your study with this population
- if your population is large, then you need to select a sample from the population.

There are three categories of sampling design

- Random/probability/sampling
- Non-random /sampling
- Mixed sampling

Step 5 Writing a Research Proposal

A research proposal is where you put the previous work all together in a way. The way of writing a research proposal way differ from one supervisor to another, from one university to another from one institute to another and so on, but the majority would require most of what is set out here (13 statement are screenshotted).

Step 6 Collecting Data

- Having formulated a research problem
- developed a study design
- constructed a research instrument and selected a sample

You then collected the data from which you will draw inferences and conclusions for your study.

Step 7 Processing and Displaying Data

The way you analyse the information largely depends on two things

- 1- The type of information: descriptive, quantitative, qualitative and attitudinal
- 2- The way you want to communicate your findings.

Step 8 Writing a Research Proposal

- In most studies you need to combine both categories qualitative and quantitative.

- Writing the research proposal is the last step which seem to be the most difficult step for many students
- This research proposal includes what you have discovered and what conclusions you have drawn from your findings.
- You have to be very clear in the whole process so that your research proposal will be better and clearer.
- You also need to be clear about the way you want to write your research proposal. It should be written in an academic style and be divided into different chapters or sections.

Lesson Four: Ten Steps to Writing an Academic Research Proposal

Introduction

The first thing a researcher is asked to do when writing a research study is “The Research Proposal”. Before starting, a researcher has to know what does a “Research Proposal” mean, and what does it aim for.

A research proposal is considered as an introduction for the whole research study; it tells the readers and the supervisors about the topic of the research. It also gives an idea about the questions which are going to be answered and how these questions will be tackled and investigated. In other words, it is just like a plan for the research study.

People start writing their Research Proposal by having a topic in mind or some ideas in which they are interested, but this topic in mind is not enough as the researcher has to specify in order not to sound too general. It has to be narrowed down into a more specific one, and the best way to do so is to read about it.

There are certain steps that should be followed in order to get a good and well-structured Research Proposal. The **first step** is to write “**The Literature Review**” that includes information in the area of the study. It enables the supervisors to know about the topic of your dissertation and what has been done on it already. It also provides the readers with the methods and procedures used by other people in similar situations and tells you what works and what does not work. For example; suggest that you are conducting a study to investigate the impact of immigration on the family. The introduction should include a brief description of the following:

- The origins of migratory movements in the world.
- General theories developed to explain migratory behaviour.
- The reason behind migration ... etc.

After providing a broad introduction, now focus on the issues and identify some gaps. In other word, look for the unanswered questions and state them clearly in the section of “Statement of the Problem”. The idea behind writing the problem is to clearly define what this proposed study is going to investigate in a form of questions that will be answered at the end of the study.

The third step is to write “Objectives of the Study”. In this section, you include your main objectives which indicate the central thrust of the study and the sub-objectives that identify the specific issues. They should be clearly stated and delineate only one issue. Use the verbs “to determine”, “to find out”, and “to ascertain” in formulating the sub-objectives which should be numerically listed. For instance, the main objective of our study is **to ascertain** the impact of immigration on the family.

Sub-objectives are as follows:

- ✳ To determine the impact of immigration on husband/wife roles as perceived by immigrants.
- ✳ To find out the impact of immigration on marital relations...

The following step is “The Hypothesis (es)”. Hypotheses are statements of your assumption about the relationship between the variables. They have a particular style of formulation. In your study, you may have as many Hypotheses as you want, as you can conduct a perfect study without formulating them. In other words, you can build up a research with only asking a question that represents the core of your topic.

The “Study Design” is the next part in which you describe the type of research your study is going to fall under. There are many study designs that a researcher wants to follow to be able to develop his research such as, case-studies, descriptive, experimental or non-experimental...etc). You also have to identify the strengths and weaknesses of your study design and include details about the procedures followed.

In the section of “Settings”, briefly describe the office, the agency or the community in which you are conducting your research and if it is about a group of people you have to describe them clearly. In “The Measurement Procedures” you explain the procedures for obtaining information and the measurement of major variables.

The following step is the “Ethical issues”. All institutions have some forms of policy on ethics that you need to be aware of. In this section, identify them and say what you suggest to deal with them.

The “Sampling” section is all about the sample and its population; in this section you have to include:

- ✳ The size of the population (if known).
- ✳ The size of the sample you are working on.
- ✳ The sampling design (whether it is chosen randomly or not randomly).

The section of “Data Analysis” is about how you are going to analyse data. So, you have to specify whether the data will be analysed manually or by computer and identify the program used as well.

In “The Structure of the Report” you organise the final report. Develop your chapters on the main themes of your study. The title of each chapter should communicate its content. The first chapter may be entitled “Introduction” since it is a preamble. The next may be “The Study of the Population” because it provides information about the study of the population itself. The other titles vary from one study to another.

If you face any problem or any difficulty in conducting your research, such as the availability of data, obtaining the sample or whatever you can describe them under the title of “Problems and Limitations”. Finally, you end up your research proposal with “The Appendix” where you attach your research tools (questionnaires, tests, interviews...etc) as well as a list of references.

To sum up, every single step must be taken into consideration when writing a well-organised and structured research proposal since it is a significant part in the research study.

1. Well Structured Steps to Follow

This hub discusses some of the common elements in a research proposal. Whether you are doing quantitative or qualitative research, it is important that you outline the reasons why you propose doing the study and what process or procedures you will follow to complete the proposed study.

1.1.How to Write a Research Proposal

Some of the important parts of a good quantitative or qualitative research proposal include:

1. Determining the general topic;
2. Performing a Literature review on the topic;
3. Identifying a gap in the literature;
4. Identifying a problem highlighted by the gap in the literature and framing a purpose for the study;
5. Writing an Introduction to the study;
6. Framing research hypotheses and or research questions to investigate or guide the study;
7. Determine the method of investigation
8. Outline the research design
9. Define the Sample size and the characteristics of the proposed sample;
10. Describe the procedures to follow for data collection and data analyses.

1.1.1. Determine a General Topic

The first step in writing an academic research proposal is to identify a general topic or subject area to investigate. Usually this first point is the easiest because the research proposal

will be tied to the overall theme of a course. In such a case, the general subject for investigation is normally determined by a professor who is leading the class, the school's department chair, or academic advisory committee.

1.1.2. Perform a Literature Review

The next step is to read as much literature on the general subject matter as time will allow. While you read the literature, it is advised to take copious notes and then summarise the purpose and findings of each study relevant to the general subject matter of the eventual research proposal.

1.1.3. Identify a Gap in the Literature

The general purpose of the literature review is not to have notes on a whole bunch of different journal articles and books on a particular subject. The purpose is to understand what studies have already been done on the subject and then to identify any glaring gaps in the literature. Identifying gaps in the literature will open up opportunities to add to the body of knowledge within the general subject area.

For instance, both Kimura and Coggins found that servant leadership is actively admired and taught in the Cambodian Christian community which makes up only a small percentage of the Cambodian population. However, no one has yet investigated attitudes towards servant leadership in the non-Christian Cambodian community which makes up over 90% of the population. This is an obvious gap in the literature.

1.1.4. Identify a Problem and Frame a Purpose Statement

After you have performed the literature review and hopefully identified an obvious gap in the literature, next you need to identify a problem related to the gap and frame a purpose statement as to why you are investigating what you propose and why others should care about the study. If your readers cannot answer the question so what? Or you answer the question why should I care? Then it may be interesting to you, but not relevant to anyone else.

1.1.5. Write an Introduction

After you have identified a pertinent problem and framed a purpose statement, then you need to craft an introduction. Among other things, the introduction to the proposal will include:

- The Problem Statement
- A brief summary of the literature
- A brief description of the gap in the literature

- A Purpose statement as to why you are proposing the study and why others should care about the subject matter tied to your research proposal.

1.1.6. Determine Research Hypotheses and or Research Questions

Next, you need to identify and craft carefully defined research hypotheses and or research questions. Research hypotheses identify what you are actually going to investigate and what you expect to find from your research study. Research hypotheses are normally found in quantitative research proposals which compare differences and/or relationships between independent variables (or causes of phenomena) and dependent variables (or the effects that result from causes). Research questions are normally found in qualitative research studies. Most importantly, in good academic writing, research hypotheses and questions must be informed or flow from the literature review.

1.1.7. Determine the Method of Investigation

The method section is the second of the two main parts of the research proposal. In good academic writing it is important to include a method section that outlines the procedures you will follow to complete your proposed study. The method section generally includes sections on the following:

- Research design;
- Sample size and characteristics of the proposed sample;
- Data collection and data analysis procedures

1.1.7.1.Determine the Research Design

The next step in good academic writing is to outline the research design of the research proposal. For each part of the design, it is highly advised that you describe two or three possible alternatives and then tell why you propose the particular design you chose. For instance, you might describe the differences between experimental, quasi-experimental, and non-experimental designs before you elaborate on why you propose a non-experimental design.

1.1.7.2.Determine the Sample Size and the Characteristics of the Sample

In this section of your research proposal, you will describe the sample size and the characteristics of the participants in the sample size. Describe how you determined how many people to include in the study and what attributes they have which makes them uniquely suitable for the study.

1.1.7.3. Determine the Data Collection and Data Analysis Procedures

The last section highlighted in this hub is the data collection and analysis procedures. In this section you will describe how you propose to collect your data e.g. through a questionnaire survey if you are performing a quantitative analysis or through one-on-one interviews if you are performing a qualitative or mixed methods study.

After you collect the data, you also need to follow a scheme as how to analyse the data and report the results. In a quantitative study you might run the data through Excel or better yet SPSS and if you are proposing a qualitative study you might use a certain computer programme to perform a narrative study or grounded theory study that exposes the main themes from the proposed interviews.

Preliminary sections	<ul style="list-style-type: none">• Title page• Abstract• Table of contents (optional)• (Perhaps a glossary or other useful preparatory information)
Research background & discussion	<ul style="list-style-type: none">• The research problem and the <i>rationale</i> for the study• Discussion/ literature review that provides <i>context</i> (i.e. literature and theory relevant to the study) and a <i>justification</i> for your research question• Objective(s) or research <i>question(s)</i> or <i>hypothesis(es)</i>• Significance or expected contribution of the study• Scope and/or <i>limitations</i> of the research area
Methodology / approach	<ul style="list-style-type: none">• Methodology (a description of, and rationale for, the methodology, design, and methods)• Data analysis (a description of, and rationale for, the proposed method of data analysis)
Programme / management	<ul style="list-style-type: none">• Ethical considerations (if appropriate)• Potential risks or problems (and how they would be addressed)• Research programme: time frame, budget, resources, health & safety considerations
Supplementary sections	<ul style="list-style-type: none">• References• (Perhaps Appendices)

Lesson Five: Approaches to Theory Development

1. Deductive

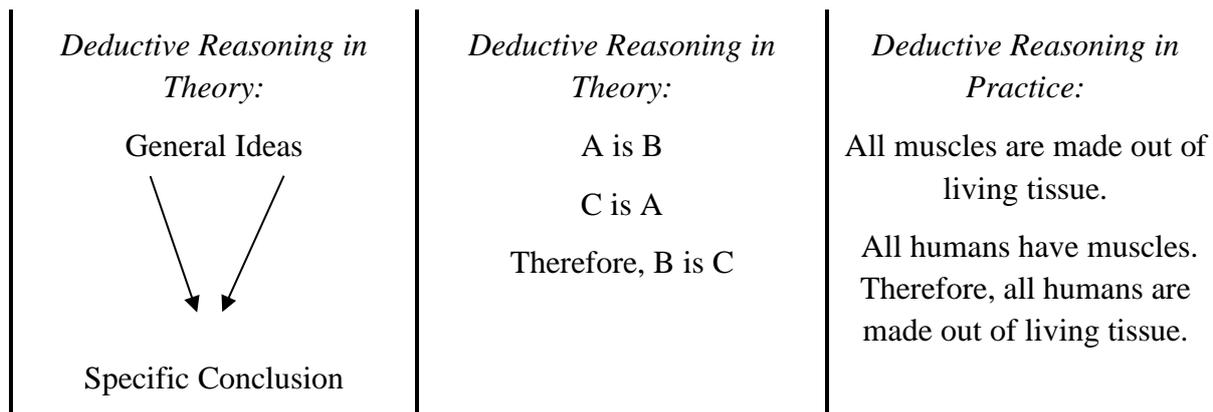
Deductive reasoning works from the more general to the more specific. Sometimes this is informally called a “top-down” approach. We might begin with thinking up a *theory* about our topic of interest. We then narrow that down into more specific *hypotheses* that we can test. We narrow down even further when we collect *observations* to address the hypotheses. This ultimately leads us to be able to test the hypotheses with specific data – a *confirmation* (or not) of our original theories.

Deductive reasoning is a basic form of valid reasoning. Deductive reasoning, or deduction, starts out with a general statement, or hypothesis, and examines the possibilities to reach a specific, logical conclusion, according to **California State University**. The scientific method uses deduction to test hypotheses and theories. “In deductive inference, we hold a theory and based on it we make a prediction of its consequences. That is, we predict what the observations should be if the theory were correct. We go from the general — the theory — to the specific — the observations,” said Dr. Sylvia Wassertheil-Smoller, a researcher and professor emerita at Albert Einstein College of Medicine.

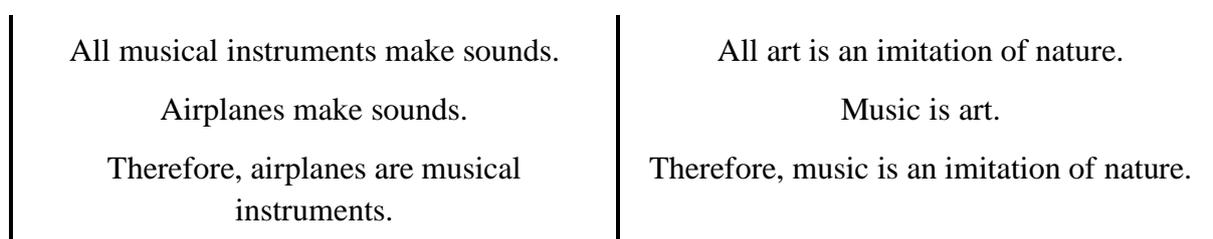
Deductive reasoning usually follows steps. First, there is a premise, then a second premise, and finally an inference. A common form of deductive reasoning is *the syllogism*, in which two statements — a major premise and a minor premise — reach a logical conclusion. For example, the premise “Every A is B” could be followed by another premise, “This C is A.” Those statements would lead to the conclusion “This C is B.” Syllogisms are considered a good way to test deductive reasoning to make sure the argument is valid. It may be easier to think of syllogisms as the following theorem: If $A=B$ and $C=A$, then $B=C$.

For example, “All men are mortal. Harold is a man. Therefore, Harold is mortal.” For deductive reasoning to be sound, the hypothesis must be correct. It is assumed that the premises, “All men are mortal” and “Harold is a man” are true. Therefore, the conclusion is logical and true. In deductive reasoning, if something is true of a class of things in general, it is also true for all members of that class.

According to California State University, deductive inference conclusions are certain provided the premises are true. It is possible to come to a logical conclusion even if the generalisation is not true. If the generalisation is wrong, the conclusion may be logical, but it may also be untrue. For example, the argument, “All bald men are grandfathers. Harold is bald. Therefore, Harold is a grandfather,” is valid logically but it is untrue because the original statement is false.



Note that the previously mentioned paragraphs state that the premises prove the conclusion, not justify it. Deductive reasoning is meant to demonstrate that the conclusion is absolutely true based on the logic of the premises. Compare the following syllogisms:



The syllogism on the left contains two objectively true premises, but its conclusion is false because it is possible for airplanes and instruments to be totally separate entities while still having the same properties. The syllogism on the right takes premises that overlap and uses them to prove that a statement is definitely true. Although deductive arguments rarely come in the exact form of a syllogism, the same thought process can be used to evaluate their strength and create counterarguments. You can more easily imagine the above syllogisms like this:



2. Inductive

Inductive reasoning works the other way, moving from specific observations to broader generalizations and theories. Informally, we sometimes call this a “bottom up” approach (please note that it’s “bottom up” and *not* “bottoms up” which is the kind of thing the bartender says to customers when he’s trying to close for the night!). In inductive reasoning, we begin with specific observations and measures, begin to detect patterns and regularities, formulate some tentative hypotheses that we can explore, and finally end up developing some general conclusions or theories.

Inductive reasoning is the opposite of deductive reasoning. Inductive reasoning makes broad generalisations from specific observations. Basically, there is data, then conclusions are drawn from the data. This is called inductive logic, according to **Utah State University**.

“In inductive inference, we go from the specific to the general. We make many observations, discern a pattern, make a generalisation, and infer an explanation or a theory,” Wassertheil-Smoller told Live Science. “In science, there is a constant interplay between inductive inference (based on observations) and deductive inference (based on theory), until we get closer and closer to the 'truth, which we can only approach but not ascertain with complete certainty.”

An example of inductive logic is, “The coin I pulled from the bag is a penny. That coin is a penny. A third coin from the bag is a penny. Therefore, all the coins in the bag are pennies.”

Even if all of the premises are true in a statement, inductive reasoning allows for the conclusion to be false. Here is an example: “Harold is a grandfather. Harold is bald. Therefore, all grandfathers are bald.” The conclusion does not follow logically from the statements.

Inductive reasoning has its place in the **scientific method**. Scientists use it to form **hypotheses** and **theories**. Deductive reasoning allows them to apply the theories to specific situations.

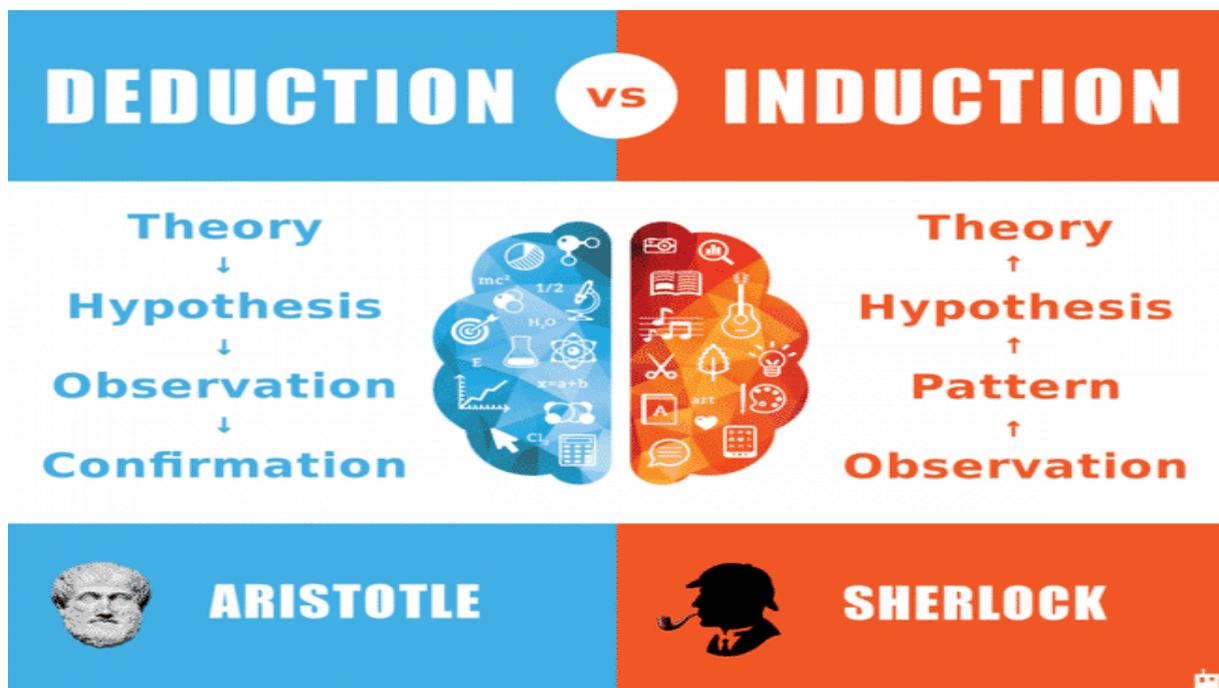
<p><i>Inductive Reasoning in Theory</i></p> <p>Specific Observations</p>	<p><i>Inductive Reasoning in Practice</i></p> <p>My neighbour’s cat hisses at me daily.</p> <p>At the pet store, all the cats hiss at me.</p> <p>Therefore, all cats probably hate me.</p>
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Just as deductive arguments are meant to prove a conclusion, inductive arguments are meant to predict a conclusion. They do not create a definite answer for their premises, but they try to show that the conclusion is the most probable one given the premises. In the above example, there are several possible factors that could contribute to a cat’s reaction toward the arguer. Perhaps she wears a deodorant that cats dislike, or maybe she is hostile toward cats and neglected to mention it. But, considering neither of these factors are acknowledged in the premises, these are not considered the most probable conclusions. The most probable conclusion, given the premises that have been supplied, is that cats hate the arguer. An inductive argument is either considered weak or strong based on whether its conclusion is a probable explanation for the premises. Compare these inductive arguments:

<p>The cost of college has been increasing over the past several decades. Therefore, higher taxes on the rich are probably the best way to help middle class America thrive.</p>	<p>The past five Marvel movies have been incredibly successful at the box office. Therefore, the next Marvel movie will probably be successful.</p>
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Once again, the reasoning on the left is weak while the right is strong. On the left, the two statements made are likely true on their own, but the first premise does not predict the second to be true. Since there is no obvious correlation between the two, the argument is weak. On the right, the premise identifies a pattern, and the conclusion provides a logical continuation of this pattern without exaggeration. Thus, the argument is strong.

These two methods of reasoning have a very different “feel” to them when you’re conducting research. Inductive reasoning, by its very nature, is more open-ended and exploratory, especially at the beginning. Deductive reasoning is narrower in nature and is concerned with testing or confirming hypotheses. Even though a particular study may look like it’s purely deductive (e.g., an experiment designed to test the hypothesized effects of some treatment on some outcome), most social research involves both inductive and deductive reasoning processes at some time in the project. In fact, it doesn’t take a rocket scientist to see that we could assemble the two graphs above into a single circular one that continually cycles from theories down to observations and back up again to theories. Even in the most constrained experiment, the researchers may observe patterns in the data that lead them to develop new theories.



3. Abductive

Another form of scientific reasoning that does not fit in with inductive or deductive reasoning is abductive. Abductive reasoning usually starts with an incomplete set of observations and proceeds to the likeliest possible explanation for the group of observations, according to **Butte College**. It is based on making and testing hypotheses using the best information available. It often entails making an educated guess after observing a phenomenon for which there is no clear explanation.

For example, a person walks into their living room and finds torn up papers all over the floor. The person’s dog has been alone in the room all day. The person concludes that the dog tore up the papers because it is the most likely scenario. Now, the person’s sister may have brought by his niece and she may have torn up the papers, or it may have been done by the landlord, but the dog theory is the more likely conclusion.

Abductive reasoning is useful for forming hypotheses to be tested. Abductive reasoning is often used by doctors who make a diagnosis based on test results and by jurors who make decisions based on the evidence presented to them.

If you have trouble differentiating *deduction*, *induction*, and *abduction*, thinking about their roots might help. All three words are based on **Latin *ducere***, meaning “**to lead.**” The prefix ***de-*** means “**from,**” and deduction derives *from* generally accepted statements or facts. The prefix ***in-*** means “**to**” or “**toward,**” and induction leads you *to* a generalization. The prefix ***ab-*** means “**away,**” and you take *away* the best explanation in abduction.

Lesson Six: Methodological Choice

Introduction

In a research, the researcher can use single data collection technique and corresponding data analysis procedure (mono method) or use more than one data collection technique and data analysis procedure (multiple method). Mixed method approach is where both quantitative and qualitative data collection techniques and analysis procedure is used (Saunders et al., 2009).

Mono-method takes place when the researcher goes about collecting either qualitative data or quantitative data based on the decisions made in the previous stages of research onion.

Mixed-methods occurs when the researcher collects both quantitative data and qualitative data with an intention to use those equally in the research study, data collection and analysis, we term it as mixed-methods research. It is rather a popular framework that attempts to complement quantitative data with qualitative data in order to overcome the limitations of each individual method.

Multi-method means that both qualitative and quantitative data collection techniques are used. However, analysis of the collected data is done using one perspective only.

1. Mixed-Methods Research

Mixed-methods research, a group of approaches to conducting educational research studies, combines both quantitative and qualitative data. While that description may seem somewhat basic and straightforward, there are many important aspects to consider. The focus here is on the characteristics of mixed-methods research, along with various designs and other important decisions to be made during the process of conducting mixed-methods research studies.

By definition mixed-methods research is that **it combines quantitative and qualitative approaches by including both quantitative and qualitative data in a single research study** (Gay, Mills, & Airasian, 2009). Creswell and Plano Clark (2011) **define mixed-methods research as those studies that include at least one quantitative strand and one qualitative strand**. A strand is a component of a study that encompasses the basic process of conducting quantitative or qualitative research: posing a research question, collecting and analysing data, and interpreting the results. However, these are merely “surface-level” descriptions of mixed-methods research.

1.1. History of Mixed-Methods Research

Before examining various characteristics of this approach to conducting research, it is important to understand when and how mixed-methods research began. Creswell and Plano Clark (2011) date the beginnings of mixed-methods research back to the mid- to late 1980s. Methodology experts and writers from all around the world seemed to have been simultaneously working on similar ideas regarding the combination of quantitative and qualitative methods. Up to this point in time, many qualitative researchers and quantitative researchers did not see the legitimacy in the *other* approach to doing research. However, members of both research camps began to realise, on a deeper level, the value of the alternate

approach. For example, quantitative researchers began to see that qualitative data could play an important role in quantitative research; similarly, qualitative researchers began to see that reporting only qualitative views of the world – and of a few individuals – would not permit generalisation of the findings to many other individuals and audiences (Creswell & Plano Clark, 2011). Over the past decade or more, interest in the use of mixed-methods research as a means for studying educational topics and phenomenon has grown substantially.

Between the late 1980s and today, definitions and descriptions of mixed-methods research have shifted and morphed, and they continue to do so. While having a singular definition is desirable for many researchers, Creswell and Plano Clark (2011) have instead offered a definition of core characteristics of mixed-methods research. They suggest that their core characteristics provide a broader definition of mixed-methods research, since they combine methods, philosophies, and a research design orientation.

1.2. Characteristics of Mixed-Methods Research

According to Creswell and Plano Clark (2011), these characteristics highlight the key components that should be considered when designing and conducting a mixed-methods study. These six core characteristics focus on activities of the mixed-methods researcher and include the following actions:

- Collecting and analysing persuasively and rigorously both qualitative and quantitative data, *based on research questions* [emphasis added].
- Mixing – or integrating or linking – the two forms of data either concurrently by combining or merging them, sequentially by having one build on the other, or embedding one within the other.
- Giving priority to one or both forms of data, *again based on the research questions and the emphasis of the research* [emphasis added].
- Using these procedures in a single research study or in multiple phases of a program of research.
- Framing these procedures within philosophical worldviews and theoretical lenses.
- Combining the procedures into specific research designs that direct the plan for conducting the study (p. 5).

These core characteristics provide an extremely comprehensive perspective on the critical aspects of engaging in mixed-methods research.

Not unlike any other approach to conducting research, **when preparing a research study that will use a mixed methodology, the researcher must provide a justification for the use of this approach.** Researchers would need to do this even if they were engaged in a study that was purely qualitative or purely quantitative. There are specific situations that would more likely warrant a research approach that capitalises on the combination of quantitative and qualitative data. Creswell and Plano Clark (2011) have described **six scenarios or examples** of research problems that are best suited for mixed-methods research:

- ★ *A need exists because one data source may be insufficient.* As you know, qualitative data provide understanding through greater depth, whereas quantitative data provide broader, more general understanding. Each approach has its advantages and limitations. Qualitative data may provide a deep examination of a phenomenon of interest but only with respect to a handful of participants. On the other hand, quantitative data can provide information across a much broader sampling of participants, but the depth of that information is certainly limited. Depending on the goals of a research study – as well as its guiding research questions – one type of data alone may not tell the complete picture or adequately answer the research questions. Additionally, the results from the analysis of qualitative data and those from the collection of quantitative data may be contradictory, which could not have been discovered if only one type or the other was collected and analysed. Using both types of data in a single research study provides *depth* as well as *breadth*.
- ★ *A need exists to explain initial results.* Sometimes researchers find themselves in situations where the results of the study do not provide complete understanding of the research problem; further explanation is needed. This additional explanation can be provided through the collection and analysis of a *second* set of data that helps explain the results of the *initial* set of data. For example, quantitative data can be used to provide numerical expressions of the relationships among variables or differences between groups, but detailed understanding of what those relationships mean or from where the differences came (i.e., the meanings *behind* the results of the statistical tests) can be provided only by qualitative data collection and analysis, as a follow-up to the initial collection of quantitative data.
- ★ *A need exists to generalise exploratory findings.* As you know from your studies of qualitative research methods, in some research investigations entered into by researchers, the research questions are not known, the variables cannot yet be identified, and the goals of the research cannot be specified at the outset of the study. In these scenarios, an initial phase focused on the collection of qualitative data is necessary simply to *explore* the setting or participants involved. Once there is enhanced general knowledge of the research situation, the qualitative phase can be followed up with a quantitative study to generalise and test what was learned from the initial exploration.
- ★ *A need exists to enhance a study with a second method.* In some research situations, a second method can be added to provide *enhanced* understanding of some phase of research that has been conducted. For example, a researcher could add a qualitative component to enhance an experimental, correlational, or causal-comparative study. Similarly, quantitative data could be added to enhance the findings of an ethnographic, narrative, or grounded theory research study. In these situations, however, the second method is *embedded* or *nested* within the primary method. The design of this approach

should not be confused with the one described above, where the second method is used as a *follow-up* to the initial method of data collection.

- ★ *A need exists to best employ a theoretical stance.* There may be a particular research situation where a theoretical perspective dictates the need to collect both quantitative and qualitative data. All data could either be collected simultaneously or sequentially, with one form of data building on the other. The application of a particular theoretical viewpoint may determine this specific need.
- ★ *A need exists to understand a research objective through multiple research phases.* Many research studies require multiple research phases – which may or may not be viewed as individual, separate studies – whereby researchers may need to connect several seemingly independent studies to achieve the overall research goal. This is a common approach used in comprehensive and/or multiyear evaluation or other types of longitudinal studies. As with the previous need, data may be collected simultaneously or sequentially. If the phases of data collection are simultaneous, or occur relatively close in time, we refer to the study as a multiphase mixed-methods research study; if the phases of data collection are distinctly separated by substantial periods of time, we might refer to the study as a multi-project mixed-methods study.

These scenarios illustrate situations in which mixed-methods research would be an appropriate design for investigating the particular problems. Although this list is not necessarily exhaustive, these cases and explanations can certainly serve as justifications for the researchers' need to use a particular mixed-methods research design. In many cases, researchers may combine some of these six explanations to provide the most accurate justification for the use of mixed-methods designs

1.3. The Mixed-Methods Research Process

As you might expect, the process for conducting mixed-methods research closely parallels the general process for conducting educational research. That being said, there are some unique aspects to consider in the process of conducting mixed-methods research. The entire process is outlined and described below (Creswell, 2005; Fraenkel, Wallen, & Hyun, 2012); however, if you compare these steps with those described, you will notice the additional, unique aspects in the process of conducting mixed-methods research:

- ✳ *Identification of the research problem to be studied.* The clear identification and specification of a research topic is the first step in any study. Consider that you may want to include both quantitative and qualitative data; however, do not become overly concerned about balancing the two forms of data at this point in the process.
- ▲ *Determination of whether a mixed-methods study is feasible.* If you believe that your study will benefit from the use of quantitative and qualitative data, you must consider what this entails. First and foremost, you must have well-developed skills in gathering both quantitative and qualitative data. Gathering both types of data will also be more time-consuming; so, you must factor in the

desired timetable for your study. Additionally, you must have the appropriate skills to analyse both types of data. Finally, it is important to consider the make-up of potential audiences for your research – those audiences should be able to understand and have an appreciation for the complexity of mixed-methods designs. If any of the above conditions are not adequately satisfied, a mixed-methods study is likely not feasible.

▲ *Development of a clear and sound rationale for doing a mixed-methods study.* Provided the study is feasible, you should consider and be prepared to answer questions of *why* you are collecting both quantitative and qualitative data, *why* both types of data are necessary, and *how* the study will be enhanced as a result of doing so. Again, if you cannot be clear and explicit in providing a rationale, a mixed-methods study may not be appropriate.

✳ *Identification of the appropriate mixed-methods design to guide your data collection.* We will discuss mixed-methods designs shortly, but for now you will need to determine the following aspects of your data collection strategy:

- The priority you will give to quantitative and qualitative data.
- The sequence of your data collection, if you do not plan to collect both types of data simultaneously.
- The specific forms of quantitative and qualitative data you will collect.

The determinations you make regarding these three items will typically align with a particular mixed-methods research design, which you should identify for inclusion in your final research report.

✳ *Development of research questions for both quantitative and qualitative methods.* In a mixed-methods study, researchers typically delineate research questions that pertain specifically to the analysis of quantitative data and ones that pertain specifically to the analysis of qualitative data. It is also possible to add research questions that can be answered by the *combination* of the interpretations of both kinds of analysis. Depending on the nature of your study, some of the research questions may need to emerge during the course of the study. For example, if you are collecting quantitative data to be followed with collection of qualitative data, those qualitative research questions will likely depend on the outcomes of the quantitative data analysis. (*It is important to note that Steps 4 and 5 may occur in reverse order or concurrently.*)

✳ *Review of related literature and development of a written review.* Reviewing related literature provides the same benefits mentioned previously – guiding aspects of your study and contextualising your study. You should develop a thorough written review of the pertinent body of literature to be included in your final research report.

✳ *Collection of data.* Qualitative and quantitative procedures for the collection of data, which will be described later on, are appropriate for mixed-methods research as well. In fact, there are no differences in data collection procedures – quantitative data in a mixed-methods study are collected just as quantitative data in any study would be, and

the same holds true for qualitative data. The only caveat, however, is that care must be taken to ensure that data are collected so they parallel the mixed-methods research design you specified earlier.

- ✳ *Analysis of data.* Similarly, data analysis proceeds just as presented previously. The exception is that you must determine – based on the mixed-methods design you are using – whether you will analyse quantitative data separately from qualitative data or integrate the two types of data analysis. Again, you must ensure that you are following the particular process outlined by the specific mixed-methods research design you chose.
- ✳ *Development of conclusions and recommendations.* You must draw conclusions, inferences, and recommendations directly from the interpretation of results of the data analysis. Once again, however, you must ensure that you are interpreting the data appropriately; in other words, you must determine if the interpretations of your analytical results will be drawn separately and sequentially, or if they will be done in an integrated, concurrent manner.
- ✳ *Preparation of a final research report.* The final step in conducting a mixed-methods research study is to prepare the final research report. There is some variation in developing a report of mixed-methods research, compared with a report of *just* quantitative or *just* qualitative research. Specifically, the report should parallel your data analysis and interpretation of results. For example, if your study involved separate data collection, analysis, and interpretation for your quantitative data and qualitative data, your report should contain two separate sections for the collection, analysis, and interpretation – one for each type of data. In contrast, if your analysis and interpretation were integrated into one process across both types of data, you should include only one section reporting the combination of quantitative and qualitative data. Thus, the data analysis section is an attempt to converge both types of data into a single set of results and interpretations, relating directly back to the research problem and guiding questions.

1.4. Components of Mixed Method Research

1.4.1. Qualitative and Quantitative Research

Qualitative research is a type of research that collects non-numerical data and that seeks to interpret meaning from them. That is why, it is said to be descriptive rather than statistical. The major aim of this type of research is to provide a description of the quality of the subject of interest being studied. To this respect, this kind of research excludes all what is probable, general, or universal. As an illustration, *Le ton beau de Marot* (1997) is a book written by Douglas Hofstadter. This latter examined a whole series of translations of a single French poem, mostly into English. In this book, he tries to explore the meanings, strengths, failings, and beauty of translation. By doing so, Douglas does not aim to state what is typical or universal but rather he tried to shed the light on all what is possible.

By contrast, quantitative research is a type of research whose main purpose is the quantification of data. It seeks to measure, to count, to compare statistically. Ultimately, it focuses on the generality of a given phenomenon or feature.

1.4.1.1. Mono Method Qualitative

1.4.1.1.1. Definition

Qualitative research is defined as a market research method that focuses on obtaining data through open-ended and conversational communication. This method is not only about “what” people think but also “why” they think so. For example, consider a convenience store (groceries) looking to improve its patronage. A systematic observation concludes that the number of men visiting this store are more. One good method to determine why women were not visiting the store is to conduct an in-depth interview of potential customers in the category.

On successfully interviewing female customers, visiting the nearby stores and malls, and selecting them through random sampling, it was known that the store does not have enough items for women and so there were fewer women visiting the store, which was understood only by personally interacting with them and understanding why they did not visit the store, because there were more male products than female ones.

Therefore, the qualitative research methods allow for in-depth and further probing and questioning of respondents based on their responses, where the interviewer/researcher also tries to understand their motivation and feelings. Understanding how your audience takes decision can help derive conclusion in market research.

1.4.1.1.2. Examples of Qualitative Methods

Qualitative research methods are designed in a manner that they help reveal the behaviour and perception of a target audience with reference to a particular topic. There are different types of qualitative research methods like an in-depth interview, focus groups, ethnographic research, content analysis, case study research that are usually used.

The results of qualitative methods are more descriptive and the inferences can be drawn quite easily from the data that is obtained.

Qualitative research methods originated in the social and behavioural sciences. Today our world is more complicated and it is difficult to understand what people think and perceive. Qualitative research methods make it easier to understand that as it is more communicative and descriptive.

The following are the qualitative research methods that are frequently used:

- **One-on-One Interview:** Conducting in-depth interviews is one of the most common qualitative research methods. It is a personal interview that is carried out with one respondent at a time. This is purely a conversational method and invites opportunities to get details in depth from the respondent.

One of the advantages of this method provides a great opportunity to gather precise data about what people believe and what their motivations are. If the researcher is well experienced, asking the right questions can help him/her collect meaningful data. If they should need more

information the researchers should ask such follow up questions that will help them collect more information.

These interviews can be performed face-to-face or on phone and usually can last between half an hour to two hours or even more. When the in-depth interview is conducted face to face it gives a better opportunity to read the body language of the respondents and match the responses.

- **Focus groups:** A focus group is also one of the commonly used qualitative research methods, used in data collection. A focus group usually includes a limited number of respondents (6-10) from within your target audience.

The main aim of the focus group is to find answers to the why what and how questions. One advantage of focus groups is, you do not necessarily need to interact with the group in person. Nowadays, focus groups can be sent as an online survey on various devices and responses can be collected at the click of a button.

Focus groups are an expensive method as compared to the other qualitative research methods. Typically, they are used to explain complex processes. This method is very useful when it comes to market research on new products and testing new concepts.

- **Ethnographic research:** Ethnographic research is the most in-depth observational method that studies people in their naturally occurring environment.

This method requires the researchers to adapt to the target audiences' environments which could be anywhere from an organisation to a city or any remote location. Here geographical constraints can be an issue while collecting data.

This research design aims to understand the cultures, challenges, motivations, and settings that occur. Instead of relying on interviews and discussions, you experience the natural settings first hand.

This type of research method can last from a few days to a few years, as it involves in-depth observation and collecting data on those grounds. It is a challenging and a time-consuming method and solely depends on the expertise of the researcher to be able to analyse, observe and infer the data.

- **Case study research:** The case study method has evolved over the past few years and developed as into a valuable qualitative research method. As the name suggests, it is used for explaining an organisation or an entity.

This type of research method is used within a number of areas like education, social sciences and similar. This method may look difficult to operate; however, it is one of the simplest ways of conducting research as it involves a deep dive and thorough understanding of the data collection methods and inferring the data.

- **Record keeping:** This method makes use of the already existing reliable documents and similar sources of information as the data source. This data can be used in a new research. This is similar to going to a library. There, one can

go over books and other reference material to collect relevant data that can likely be used in the research.

- **Process of observation:** Qualitative Observation is a process of research that uses subjective methodologies to gather systematic information or data. For that, the focus on qualitative observation is the research process of using subjective methodologies to gather information or data. The qualitative observation is primarily used to equate quality differences.

Qualitative observation deals with the **five** major sensory organs and their functioning – sight, smell, touch, taste, and hearing. This does not involve measurements or numbers but instead characteristics.

1.4.1.1.3. Qualitative Research: Data Collection and Analysis

A. Qualitative Data Collection

Qualitative data collection allows collecting data that is non-numeric and helps us explore how decisions are made and provide us with detailed insight. For reaching such conclusions, the data that is collected should be holistic, rich and nuanced and findings should emerge through careful analysis.

1. Whatever method a researcher chooses for collecting qualitative data, one aspect is very clear that the process will generate a large amount of data. In addition to the variety of methods available, there are also different methods of collecting and recording the data.

For example, if the qualitative data is collected through **focus group** or **one-to-one discussion**, there will be handwritten notes or video recorded tapes. If there are recordings, they should be transcribed before the process of data analysis can begin.

2. As a rough guide, it can take a seasoned researcher 8-10 hours to transcribe the recordings of an interview, which can generate roughly 20-30 pages of dialogues. Many researchers also like to maintain separate folders to maintain the recording collected from the different focus group. This helps them compartmentalise the data collected.

3. In case there are running notes taken, which are also known as field notes, they are helpful in maintaining comments, environmental contexts, nonverbal cues etc. These filed notes are helpful and can be compared while transcribing audio recorded data. Such notes are usually informal but should be secured in a similar manner as the video recordings or the audio tapes.

B. Qualitative Data Analysis

Qualitative data analysis are the ones such as notes, videos, audio recordings images, and text documents. One of the most used methods for qualitative data analysis is text analysis.

Text analysis is a data analysis method that is distinctly different from all other qualitative research methods, where researchers analyse the social life of the participants in the research study and decode the words, actions etc.

There are images also that are used in this research study and the researchers analyse the context in which the images are used and draw inferences from them. In the last decade, text analysis through what is shared on social media platform has gained supreme popularity.

1.4.1.1.4. Characteristics of Qualitative Research Methods

1. Qualitative research methods usually collect data at the sight, where the participants are experiencing issues or problems. These are real-time data and rarely bring the participants out of the geographic locations to collect information.
2. Qualitative researchers typically gather multiple forms of data, such as interviews, observations, and documents, rather than rely on a single data source.
3. This type of research method works towards solving complex issues by breaking down into meaningful inferences, that is easily readable and understood by all.
4. Since its a more communicative method, people can build their trust on the researcher and the information thus obtained is raw and unadulterated.

1.4.1.1.5. Qualitative Research Method Case Study Example

Let's take the example of a bookstore owner who is looking for ways to improve their sales and customer outreach. An **online community** of members who were the loyal patrons of the bookstore were interviewed and related questions that were asked and the questions were answered by them.

At the end of the interview, it was realised that most of the books in the stores were suitable for adults and there were not enough options for children or teenagers.

By conducting this qualitative research, the bookstore owner realized what the shortcomings were and what were the feelings of the readers. Through this research now the bookstore owner can now keep books for different age categories and can improve his sales and customer outreach.

Such qualitative research method example can serve as the basis to indulge in further **quantitative research**, which provides remedies.

1.4.1.2. Mono Method Quantitative

1.4.1.2.1. Definition

Quantitative methods emphasise objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalising it across groups of people or to explain a particular phenomenon.

1.4.1.2.2. Characteristics of Quantitative Research

Your goal in conducting quantitative research study is to determine the relationship between one thing [an independent variable] and another [a dependent or outcome variable] within a population. Quantitative research designs are either **descriptive** [subjects usually measured once] or **experimental** [subjects measured before and after a treatment]. A descriptive study establishes only associations between variables; an experimental study establishes causality.

Quantitative research deals with numbers, logic, and an objective stance. Quantitative research focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning [i.e., the generation of a variety of ideas about a research problem in a spontaneous, free-flowing manner].

Its main characteristics are:

- The data is usually gathered using structured research instruments.
- The results are based on larger sample sizes that are representative of the population.
- The research study can usually be replicated or repeated, given its high reliability.
- Researcher has a clearly defined research question to which objective answers are sought.
- All aspects of the study are carefully designed before data is collected.
- Data are in the form of numbers and statistics, often arranged in tables, charts, figures, or other non-textual forms.
- Project can be used to generalise concepts more widely, predict future results, or investigate causal relationships.
- Researcher uses tools, such as questionnaires or computer software, to collect numerical data.

The overarching aim of a quantitative research study is to classify features, count them, and construct statistical models in an attempt to explain what is observed.

Things to keep in mind when reporting the results of a study using quantitative methods:

1. **Explain the data collected** and their statistical treatment as well as all relevant results in relation to the research problem you are investigating. Interpretation of results is not appropriate in this section.
2. **Report unanticipated events** that occurred during your data collection. Explain how the actual analysis differs from the planned analysis. Explain your handling of missing data and why any missing data does not undermine the validity of your analysis.
3. **Explain the techniques** you used to "clean" your data set.
4. **Choose a minimally sufficient statistical procedure**; provide a rationale for its use and a reference for it. Specify any computer programmes used.
5. **Describe the assumptions** for each procedure and the steps you took to ensure that they were not violated.
6. **When using inferential statistics**, provide the descriptive statistics, confidence intervals, and sample sizes for each variable as well as the value of the test statistic, its direction, the degrees of freedom, and the significance level [report the actual p value].
7. **Avoid inferring causality**, particularly in nonrandomised designs or without further experimentation.

8. **Use tables to provide exact values**; use figures to convey global effects. Keep figures small in size; include graphic representations of confidence intervals whenever possible.
9. **Always tell the reader what to look for in tables and figures.**

NOTE: When using pre-existing statistical data gathered and made available by anyone other than yourself [e.g., government agency], you still must report on the methods that were used to gather the data and describe any missing data that exists and, if there is any, provide a clear explanation why the missing data does not undermine the validity of your final analysis.

1.4.1.2.3. Basic Research Design for Quantitative Research

Before designing a quantitative research study, you must decide whether it will be descriptive or experimental because this will dictate how you gather, analyse, and interpret the results. **A descriptive study** is governed by the following rules: subjects are generally measured once; the intention is to only establish associations between variables; and, the study may include a sample population of hundreds or thousands of subjects to ensure that a valid estimate of a generalised relationship between variables has been obtained. **An experimental design** includes subjects measured before and after a particular treatment, the sample population may be very small and purposefully chosen, and it is intended to establish causality between variables.

A. Introduction

The introduction to a quantitative study is usually written in the present tense and from the third person point of view. It covers the following information:

- **Identifies the research problem** -- as with any academic study, you must state clearly and concisely the research problem being investigated.
- **Reviews the literature** -- review scholarship on the topic, synthesising key themes and, if necessary, noting studies that have used similar methods of inquiry and analysis. Note where key gaps exist and how your study helps to fill these gaps or clarifies existing knowledge.
- **Describes the theoretical framework** -- provide an outline of the theory or hypothesis underpinning your study. If necessary, define unfamiliar or complex terms, concepts, or ideas and provide the appropriate background information to place the research problem in proper context [e.g., historical, cultural, economic, etc.].

B. Methodology

The methods section of a quantitative study should describe how each objective of your study will be achieved. Be sure to provide enough detail to enable the reader can make an informed assessment of the methods being used to obtain results associated with the research problem. The methods section should be presented in the past tense.

- **Study population and sampling** -- where did the data come from; how robust is it; note where gaps exist or what was excluded. Note the procedures used for their selection;

- **Data collection** – describe the tools and methods used to collect information and identify the variables being measured; describe the methods used to obtain the data; and, note if the data was pre-existing [i.e., government data] or you gathered it yourself. If you gathered it yourself, describe what type of instrument you used and why. Note that no data set is perfect--describe any limitations in methods of gathering data.
- **Data analysis** -- describe the procedures for processing and analysing the data. If appropriate, describe the specific instruments of analysis used to study each research objective, including mathematical techniques and the type of computer software used to manipulate the data.

C. Results

The finding of your study should be written objectively and in a succinct and precise format. In quantitative studies, it is common to use graphs, tables, charts, and other non-textual elements to help the reader understand the data. Make sure that non-textual elements do not stand in isolation from the text but are being used to supplement the overall description of the results and to help clarify key points being made.

- **Statistical analysis** -- how did you analyse the data? What were the key findings from the data? The findings should be present in a logical, sequential order. Describe but do not interpret these trends or negative results; save that for the discussion section. The results should be presented in the past tense.

D. Discussion

Discussions should be analytic, logical, and comprehensive. The discussion should meld together your findings in relation to those identified in the literature review, and placed within the context of the theoretical framework underpinning the study. The discussion should be presented in the present tense.

- **Interpretation of results** -- reiterate the research problem being investigated and compare and contrast the findings with the research questions underlying the study. Did they affirm predicted outcomes or did the data refute it?
- **Description of trends, comparison of groups, or relationships among variables** -- describe any trends that emerged from your analysis and explain all unanticipated and statistical insignificant findings.
- **Discussion of implications** – what is the meaning of your results? Highlight key findings based on the overall results and note findings that you believe are important. How have the results helped fill gaps in understanding the research problem?
- **Limitations** -- describe any limitations or unavoidable bias in your study and, if necessary, note why these limitations did not inhibit effective interpretation of the results.

E. Conclusion

End your study by summarising the topic and provide a final comment and assessment of the study.

- **Summary of findings** – synthesise the answers to your research questions. Do not report any statistical data here; just provide a narrative summary of the key findings and describe what was learnt that you did not know before conducting the study.
- **Recommendations** – if appropriate to the aim of the assignment, tie key findings with policy recommendations or actions to be taken in practice.
- **Future research** – note the need for future research linked to your study’s limitations or to any remaining gaps in the literature that were not addressed in your study.

1.4.1.2.4. Strengths of Using Quantitative Research

Quantitative researchers try to recognise and isolate specific variables contained within the study framework, seek correlation, relationships and causality, and attempt to control the environment in which the data is collected to avoid the risk of variables, other than the one being studied, accounting for the relationships identified.

Among the specific strengths of using quantitative methods to study social science research problems:

- Allows for a broader study, involving a greater number of subjects, and enhancing the generalisation of the results;
- Allows for greater objectivity and accuracy of results. Generally, quantitative methods are designed to provide summaries of data that support generalisations about the phenomenon under study. In order to accomplish this, quantitative research usually involves few variables and many cases, and employs prescribed procedures to ensure validity and reliability;
- Applying well established standards means that the research can be replicated, and then analysed and compared with similar studies;
- You can summarise vast sources of information and make comparisons across categories and over time; and,
- Personal bias can be avoided by keeping a ‘distance’ from participating subjects and using accepted computational techniques.

1.4.1.2.5. Limitations of Using Quantitative Research

Quantitative methods presume to have an objective approach to studying research problems, where data is controlled and measured, to address the accumulation of facts, and to determine the causes of behaviour. As a consequence, the results of quantitative research may be statistically significant but are often humanly insignificant.

Some specific limitations associated with using quantitative methods to study research problems in the social sciences include:

- Quantitative data is more efficient and able to test hypotheses, but may miss contextual detail;
- Uses a static and rigid approach and so employs an inflexible process of discovery;

- The development of standard questions by researchers can lead to “structural bias” and false representation, where the data actually reflects the view of the researcher instead of the participating subject;
- Results provide less detail on behaviour, attitudes, and motivation;
- Researcher may collect a much narrower and sometimes superficial dataset;
- Results are limited as they provide numerical descriptions rather than detailed narrative and generally provide less elaborate accounts of human perception;
- The research is often carried out in an unnatural, artificial environment so that a level of control can be applied to the exercise. This level of control might not normally be in place in the real world thus yielding “laboratory results” as opposed to “real world results”; and,
- Pre-set answers will not necessarily reflect how people really feel about a subject and, in some cases, might just be the closest match to the preconceived hypothesis.

1.4.1.3. Qualitative Research Methods Vs Quantitative Research Methods

The basic differences of **qualitative research** methods and **quantitative research** methods are simple are straightforward. They differ in:

- Their analytical objectives
- Types of questions asked
- Types of data collection instruments
- Forms of data they produce
- Degree of flexibility

Attributes	Qualitative Research Methods	Quantitative Research Methods
Analytical objectives	This research method focuses on to describe individual experiences and beliefs.	Quantitative research methods focus on describing the characteristic
Types of questions asked	Open ended questions	Closed ended questions
Data collection instrument	Use semi-structured methods such as in-depth interviews, focus groups, and participant observation	Use highly structured methods such as structured observation using questionnaires and surveys
Form of data produced	Descriptive data	Numerical data
Degree of flexibility	Participant responses affect how and which questions researchers ask next	Participant responses do not influence or determine how and which questions researchers ask next

Lesson Seven: Research Design (Research Strategies)

1. Action Research



1.1. Definition of Action Research

The concept of action research is very old, but Stephen M. Corey has applied this concept first in the field of social studies. He has defined the term action research:

“The process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decision and action is what a number of people have called action research.”

On the basis of this definition, the following characteristics may be enumerated:

1. It is a process for studying practical problems of social studies.
2. It is a scientific procedure for finding out a practical solution of current problem.
3. The practitioner can only study his problem.
4. The focus is to improve and modify the current practices.

1.2. Origin of Action Research

The concept of action research is based on the ‘Modern Human Organization Theory.’ This organization theory is task and relationship centred. It assumes that worker of the organization has the capacity to solve the problem and take decision. He brings certain values, interest and attitudes in the organization. Therefore, the opportunities should be given to the workers of the organization to study and solve the current problems of their practices so that they can improve and modify their practices. The practitioner can only study and solve the problems of the current practices. The workers would be efficient when they are given freedom for improving and modifying their practices.

The origin of action research is also considered from the field of psychology or social psychology. Kurt Lewin explains life space in terms of person and goal. There is a barrier in between person and goal. He was to overcome the barrier to achieve the goal. 'It depends on the abilities of the person to achieve the goal. The person's activities are governed by the goal. The practitioner has to face this type of situation.

The concept of action research is being used in Social Studies since (1926). Buckingham has mentioned this concept first in his book 'Research for Teachers'. But Stephen M. Corey used this concept for solving the problems of Social Studies for the first time.

1.3.Steps of Action Research

The research work is done by reflective thinking and not by traditional thinking. The reflective thinking functions systematically. The steps of research are drawn from reflective thinking. The following are the six steps of research:

- (a) *Selection of the problem.* The problem is selected and defined. The feasibility of the problem depends on its delimitations. Hence, the problem is also delimited in this step.
- (b) *Formulation of hypotheses.* Some tentative solutions are given for the problem when these solutions are based on certain rationale they are termed as hypothesis. Therefore, in this step hypotheses are formulated.
- (c) *Design of research.* These hypotheses are subjected to verification. A design of research is developed for collection of data or evidences for testing the hypotheses. It involves method, sample and techniques of research. The appropriate method and techniques are selected for this purpose.
- (d) *Collection of data.* The observations and research tools are administered on the subjects and their responses are scored out. Thus, the obtained data are organized in tabular form.
- (e) *Analysis of data.* The appropriate statistical techniques are used to analyse the data so that some decisions may be taken about the hypotheses. The results are used to draw some conclusions.
- (f) *Formulation of conclusions.* The results are discussed and some conclusions are drawn in the form of new information, theory, facts and solution for the practical problems.

These steps are followed in both types of research: fundamental and action research, but there is significant difference between the two.

1.4.Objectives of Action Research

The action research projects are conducted for achieving the following objectives:

- 1) To improve the working conditions of school plant.
- 2) To develop the scientific attitude among teachers and principals for studying their problems.
- 3) To develop the scientific attitude among students and teachers for understanding and solving their problems.

- 4) To develop the ability and understanding among administrators to improve and modify the school conditions and make it more conducive to learning.
- 5) To root out the traditional and mechanical environment of school.
- 6) To make the school system effective for generating a healthy environment for student learning.
- 7) To raise the level of performance and level of aspiration of the students.

1.5. Difference Between Fundamental and Action Research

Research has two main functions: to contribute to new knowledge in Social Studies and to improve the Social Studies practices. The first function is of fundamental research and second function of action research. Differences between the two are as follow:

Table. 3

Difference Between Fundamental and Action Research

Action Research	Fundamental Research
<p>1. Purpose The improvement in school and classroom teaching process.</p>	<p>Fundamental Research contributes to new knowledge in the form of new theory, facts and truth.</p>
<p>2. Investigator The person is a teacher, principal inspector and administrator. Investigator must be directly associated with the problem. There is no pre-requisite of academic qualifications.</p>	<p>The investigator should have postgraduate degree in the subject. He should have specialisation in the field. He may or may not be related with the problem.</p>
<p>3. Problem The form of the problem is very narrow. It is a local problem. It is practical problem. The problem is selected and finalised by the worker or investigator himself. No external approval is required.</p>	<p>The problem is broad and relates to the broad field of Social Studies. The problem may be selected by the researcher, but it is approved by the external experts.</p>
<p>4. Hypothesis The action hypotheses are formulated on the basis of the causes of the problem. An action hypothesis needs one design of research. One hypothesis is tested at one time.</p>	<p>The hypotheses are formulated on the basis of some rationale. All the hypotheses are tested by one design of research. The hypothesis is not essential in all types of research.</p>
<p>5. Design The design of action research is flexible. It can be changed according to the convenience of the worker. It includes certain steps and measuring tools.</p>	<p>The design is rigid and cannot be changed. Theoretical and practical knowledge is essential for the researcher. It involves method, sample and techniques of research.</p>
<p>6. Sampling</p>	<p>It is the basis of research and sampling is the</p>

There is not a problem of sampling in action research, accidental or incidental sample is used. The students of a class or school are the sample of action research. Non-probability techniques are used.

7. Data Collection

Observation and teacher made tests are used for collecting data in action research. The standardised tool may be used if it is available.

8. Analysis of Data

The data are analysed by using statistical techniques to draw some results. Simple statistics: percentages mean mode and graphical representations are employed for this purpose. The decision is taken about solution of the problem.

9. Conclusions

Some conclusions are drawn about the solution of the problem. The conclusions are in the form of remedial measures for improving the current practices. It does not contribute to the fund of knowledge.

10. Evaluation

The action research project is evaluated by the investigator himself and no external evaluation is required. Its results are in the form of improvement in the job and current practices.

11. Finance

The finance for the action research is met out by the school or the investigator himself.

12. Training

The teachers are trained in B.Ed. programme for the knowledge and skill of action research concept. The extension departments are

major problem. The knowledge and training of sampling techniques are essential; usually probability sampling techniques are employed. The true representative sample is selected by using an appropriate technique of sampling from the population.

Usually the standardized tests are used for collecting data in basic research. If the tools of such types are not available, the investigator has to prepare the tools and their reliability and validity are estimated.

The parametric statistical techniques are used for analysing the data. The knowledge and understanding are essential. The decision is taken about the hypotheses on the basis of data or evidence.

The conclusions are in the form of generalization. The generalization may be a new theory or new fact or new truth or new interpretation. Thus, the conclusions may be the new knowledge in the field studied.

A panel of examiners is appointed for examining the report of fundamental research. It may be approved, or revised or rejected. The degree of Ph.D., D.Sc. or D.Phil. is awarded for the worth contribution in the field studied.

The U.G.C. (University Grant Commission) is awarding Junior research fellow and senior research fellowships for fundamental research in all the, subjects. The NCERT (National Council of Research and Training) is financing research projects of Social Studies.

The U.G.C. is also giving financial, assistance to college teachers for their research work. An investigator also bears the expenses himself.

There is a compulsory paper of Research Methods and Statistics of M.Ed. and M.Phil. levels for the knowledge and understanding of research methodology. During this

organising workshops for action research projects for in-service teachers.

13. Scope

The field of action research work is very narrow. It deals with the problems of classroom teaching and school. The field is local.

14. Examples

The problem of assignment, spelling, pronunciation and poor attendance.

15. Importance

The major importance is solving the local problems of school and classroom teaching.

programme the students have to submit a dissertation for the practical knowledge of conducting research work.

The field for basic research is broad. It deals with the basic problems of Social Studies and teaching/learning situations.

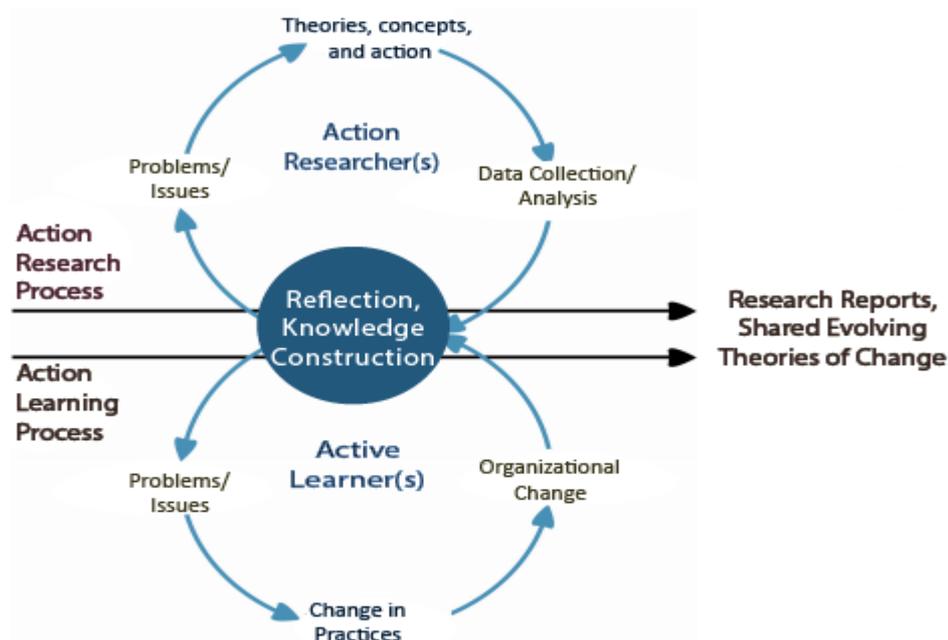
(a) Teaching skills for different subject teachers (languages, social studies and science).

(b) Behaviour patterns or effective teachers and creative teachers.

(c) Difference between trained and untrained teachers' performances.

The major importance is to answer the basic questions and contribution to the field of

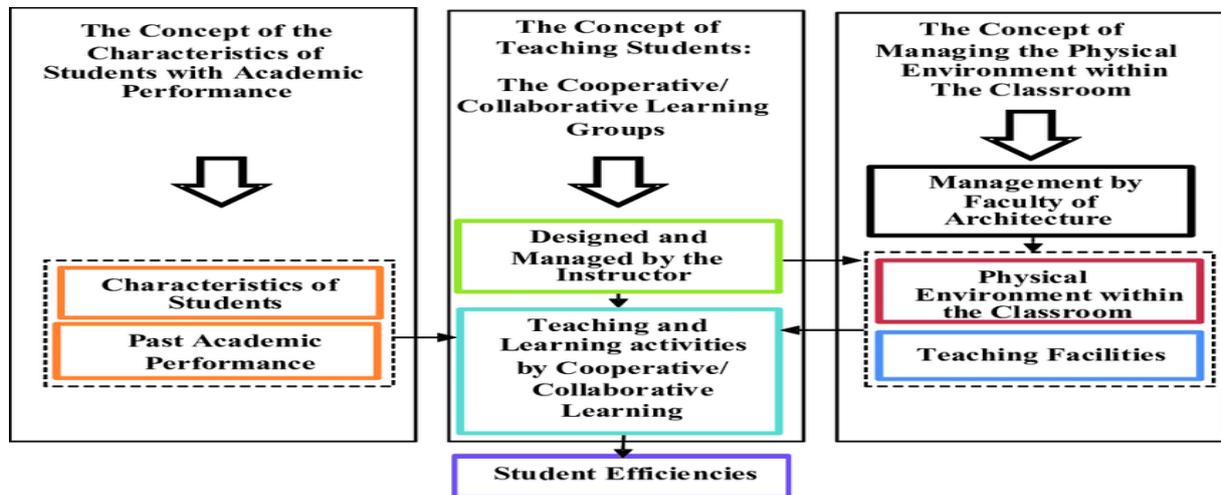
knowledge by solving the basic problems of Social Studies.



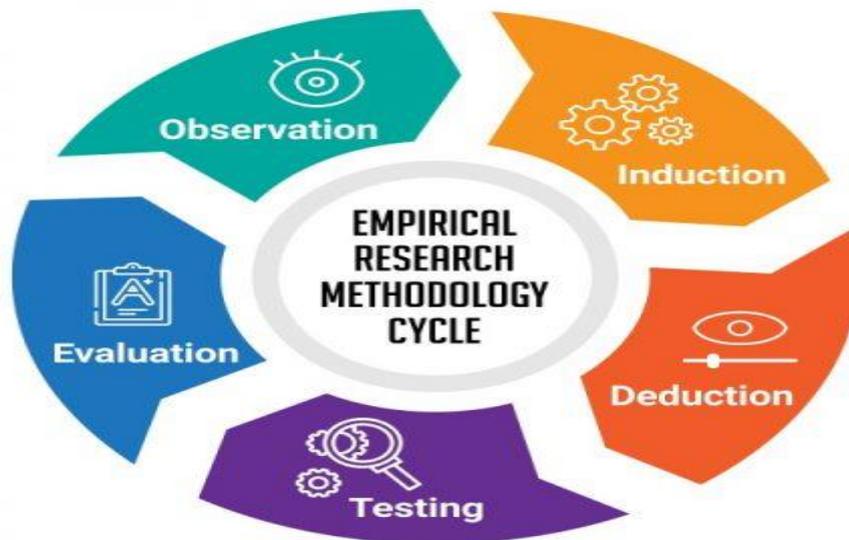
2. Conceptual and Empirical Research

In fact, the scientific research is often divided into two main classes: conceptual and empirical research. Conceptual research, on the one hand, aims to define and clarify concepts and theories, to interpret or reinterpret ideas in order to introduce new ones. This kind of research is conducted by analysing already present information on the concerned topic. The researcher, in this case, does no experiment but he may make use of observations done by

others. Its primary aim is to develop new concepts or to interpret existing ones. This type of research is also called theoretical research.



Empirical research, on the other hand, relies on observation and experiment to seek for new data and new information. It is conducted for the aim of answering a specific question or to confirm or disconfirm hypotheses, or to generate new ones. This type of research is a data-based research, with analysis coming up with conclusions that are capable of being verified.



Actually, it is important to mention that the conceptual analysis is the preliminary step towards the empirical research. To this respect, conceptual research involves:

- Comparing different definitions and interpretations introduced by others.
- Explaining and interpreting the whole theoretical framework.
- Setting up the different classification systems that constitute the concept.
- Interpreting the results of the analysis.
- Introducing new ideas that might lead to further new research in the future.

2.1. Characteristics of Empirical Research

Actually, the empirical research is based on some key principles. First, it attempts to describe a particular phenomenon for the sake of generalisation in order to understand the larger picture. Second, it is concerned with the description and the explanation of a given phenomenon. The third principle is prediction. After knowing the causes of something we can often anticipate when it will take place in the future. The last principle is to hypothesise. This means to give a supposition or explanation that is provisionally accepted in order to interpret certain phenomenon, and to provide guidance for further investigation.

2.2. Subtypes of Empirical Research: Naturalistic vs. Experimental

The observational or naturalistic studies are those studies in which the researcher observes the phenomenon as it takes place in the real life, in its natural setting. It simply means that the researcher does not manipulate anything, and he is not going to interfere. He is just there trying to get a general picture of what is going on, and take notes of whatever is going to happen. For instance, the researcher can observe how and when do translators revise their work. Actually, the fact that the researcher is observing may of course influence the behaviour of the person being observed. Therefore, it is preferable that the researcher uses other tools such as cameras, tape recorders in order to conduct his observation without affecting the results of his study.



The experimental studies, in contrast, are those studies in which there is an interference made by the researcher in order to deal with a particular feature for study. While doing so, he is going to eliminate other features that are not relevant to the research. For instance, the researcher might compare the ways in which the trainee translators revise their work of translation with the ways professionals do. He, therefore, arranges two groups: professionals vs. trainees. Then, he gives them the same translation task, and the same deadline, and he sees what happens.

2.3. Examples of Empirical Research Methods

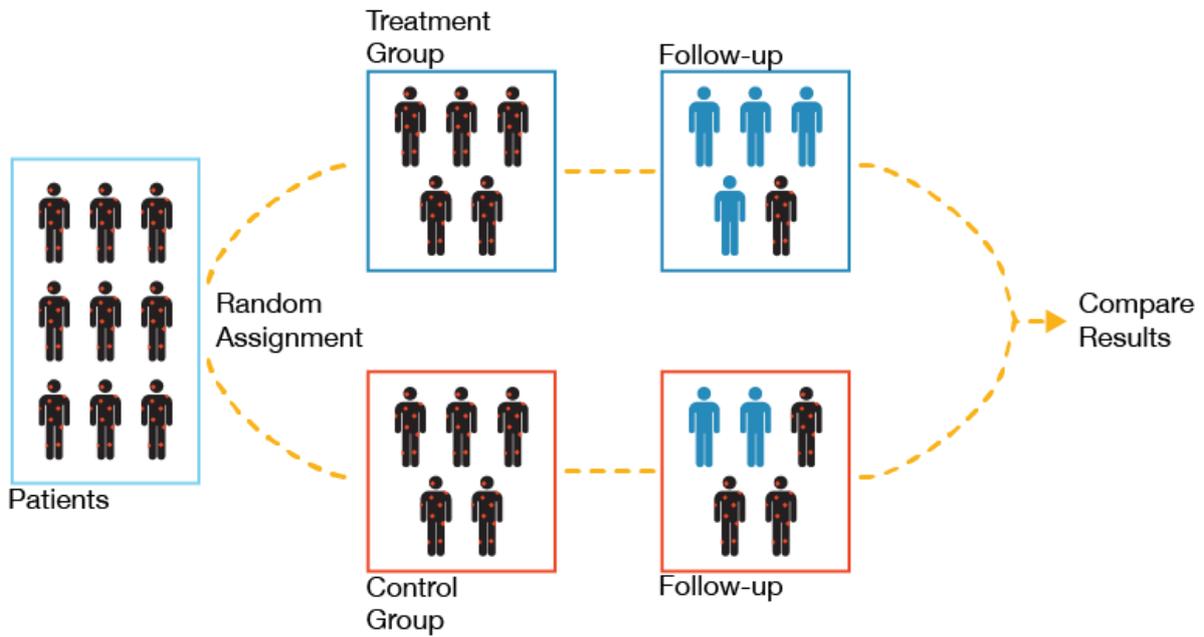
There are various research methods that can be applied in the empirical research. The first method is the case study, which can be divided into two. Simple case studies focus on a single unit to be analysed: a single translator, a single translation, or a single translation company. Whereas, more complex case studies focus on several units; for example, comparing and contrasting two works of translation. The second method is the corpus studies. The latter use a wide range of textual data, containing examples of whatever being studied. The corpora, in corpus-based translation studies, can be either parallel, i.e., containing texts aligned with their translations or comparable, i.e., a collection of similar texts in different languages. Last but not least, the survey study is generally devoted to the exploration or description of a phenomenon that is distributed over a population.

2.4. Experiments

People who take part in research involving experiments might be asked to complete various tests to measure their cognitive abilities (e.g. word recall, attention, concentration, reasoning ability etc.) usually verbally, on paper or by computer. The results of different groups are then compared. Participants should not be anxious about performing well but simply do their best. The aim of these tests is not to judge people or measure so-called intelligence, but to look for links between performance and other factors. If computers are used, this has to be done in such a way that no previous knowledge of computers is necessary. So, people should not be put off by this either.

The study might include an intervention such as a training programme, some kind of social activity, the introduction of a change in the person's living environment (e.g. different lighting, background noise, different care routine) or different forms of interaction (e.g. linked to physical contact, conversation, eye contact, interaction time etc.). Often the interaction will be followed by some kind of test (as mentioned above), sometimes before and after the intervention. In other cases, the person may be asked to complete a questionnaire (e.g. about his/her feelings, level of satisfaction or general well-being).

Some studies are just based on one group (within-group design). The researchers might be interested in observing people's reactions or behaviour before and after a certain intervention (e.g. a training programme). However, in most cases, there are at least two groups (a between-subjects design). One of the groups serves as a **control group** and is not exposed to the intervention. This is quite similar to the procedure in clinical trials whereby one group does not receive the experimental drug. This enables researchers to compare the two groups and determine the impact of the intervention. Alternatively, the two groups might differ in some important way (e.g. gender, severity of dementia, living at home or in residential care, etc.) and it is that difference that is of interest to the researchers.



2.4.1. Definition of Experiments

Experimental studies are ones where researchers introduce an intervention and study the effects. An experiment is a study in which a treatment, procedure, or program is intentionally introduced and a result or outcome is observed.

The American Heritage Dictionary of the English Language defines an experiment as “A test under controlled conditions that is made to demonstrate a known truth, to examine the validity of a hypothesis, or to determine the efficacy of something previously untried.”

True experiments have four elements: manipulation, control, random assignment, and random selection. The most important of these elements are manipulation and control. Manipulation means that something is purposefully changed by the researcher in the environment. Control is used to prevent outside factors from influencing the study outcome. When something is manipulated and controlled and then the outcome happens, it makes us more confident that the manipulation “caused” the outcome. In addition, experiments involve highly controlled and systematic procedures in an effort to minimize error and bias which also increases our confidence that the manipulation “caused” the outcome.

Another key element of a true experiment is random assignment. Random assignment means that if there are groups or treatments in the experiment, participants are assigned to these groups or treatments, or randomly (like the flip of a coin). This means that no matter who the participant is, he/she has an equal chance of getting into all of the groups or treatments in an experiment. This process helps to ensure that the groups or treatments are similar at the beginning of the study so that there is more confidence that the manipulation (group or treatment) “caused” the outcome. Experimental studies are usually randomized, meaning the subjects are grouped by chance.

2.4.2. Examples

Experimental Studies – Example 1

An investigator wants to evaluate whether a new technique to teach math to elementary school students is more effective than the standard teaching method. Using an experimental design, the investigator divides the class randomly (by chance) into two groups and calls them “group A” and “group B.” The students cannot choose their own group. The random assignment process results in two groups that should share equal characteristics at the beginning of the experiment. In group A, the teacher uses a new teaching method to teach the math lesson. In group B, the teacher uses a standard teaching method to teach the math lesson. The investigator compares test scores at the end of the semester to evaluate the success of the new teaching method compared to the standard teaching method. At the end of the study, the results indicated that the students in the new teaching method group scored significantly higher on their final exam than the students in the standard teaching group.

Experimental Studies – Example 2

A fitness instructor wants to test the effectiveness of a performance-enhancing herbal supplement on students in her exercise class. To create experimental groups that are similar at the beginning of the study, the students are assigned into two groups at random (they cannot choose which group they are in). Students in both groups are given a pill to take every day, but they do not know whether the pill is a placebo (sugar pill) or the herbal supplement. The instructor gives Group A the herbal supplement and Group B receives the placebo (sugar pill). The students' fitness level is compared before and after six weeks of consuming the supplement or the sugar pill. No differences in performance ability were found between the two groups suggesting that the herbal supplement was not effective.

Discussion Questions

1. *What makes both of these studies experimental?*
2. *What type of information might the investigator collect in these two studies to see if the treatment (e.g. new teaching method or herbal supplement) is effective?*
3. *Can the researcher establish cause and effect in either or both of these two studies?*
4. *What would happen if the researcher allowed the students to study together or talk about the different methods that were being used to teach the math lesson? Would this be a good or a bad idea? How would this influence the study results?*
5. *What if the fitness instructor allowed participants to take other herbal supplements in addition to the supplements being tested? Would this be a good or a bad idea? How would this influence the study results?*

Answers

There are two types of experimental design:

In the first one, we can deal with one group, we make our experiment on this group. However, in the second, we can deal with two groups; the experimental and the control group. We make

a pre-test to see the level of the for example and a post test to see if the level of students has ameliorated.

The First Case

This study is experimental because the researcher, here, is using an experimental design; he divided the class randomly into two groups and the students cannot choose their group. In the first study a programme is purposefully introduced to students and the results were scored, in addition to the four elements which should be present in an experimental design: manipulation, control, random assignment, and random selection. In the second study, there was a programme that is intentionally introduced to students and a result that is observed and also because the four elements of a true experiment are achieved: manipulation (the herbal supplement is purposefully introduced to students to see if it is effective or not), control (the researcher prevented any outside outcomes that may influence them by giving them the pills without telling them about the nature of these pills), random assignment (both groups were randomly assigned), random selection (both groups were randomly selected).

1. The type of information that might be collected is statistical, i.e., the test scores at the end of the semester from a quantitative approach and analyse the scores at the end and make a comparison from a qualitative approach. In the second study, the type of information is descriptive because the results were observed.
2. Yes, he can because the new teaching method would lead to better results while the standard teaching that is the old method would lead to less significant results compared to the results performed by the two groups.
3. If the researcher allows the students to study together, the results of the study would not be reliable. They would be biased. In addition, there would not be any difference between the two groups.
4. This would be a bad idea.
5. The study results would be biased and the study would fail, the effectiveness of the method would not be determined and the results would not be reliable.

The Second Case

1. This study is experimental because the researcher here is using an experimental design; the experiment would be held by means of two experimental.
2. The type of data which might be collected is the change in students' fitness, their capacity of running, breathing which would be a descriptive data (it deals with observation of the change among students).
3. No, the researcher cannot by means of comparison between the two groups that is to say the one which took the pills had no result, i.e., they resulted in nothing. In addition, there was no difference in the performance of the two groups.

4. Perhaps the effect of the supplements they would take would tend to be a counter balance as long as their performance is concerned; these herbals would affect negatively the ones that they're supposed to take. For, the results would not be trustworthy.
5. That would be a bad idea.
6. The results would be biased and would not be reliable.

Consider the following research situation:

- A researcher in education experimented a method of teaching oral expression. The results of the investigation did not confirm the results of the experimental group of students, when compared with the performance of a control group. What are the possible interpretations of such results? What would you do if you were conducting such an investigation?

3. Surveys

Surveys involve collecting information, usually from fairly large groups of people, by means of questionnaires but other techniques such as interviews or telephoning may also be used. There are different types of survey. The most straightforward type (the “one shot survey”) is administered to a sample of people at a set point in time. Another type is the “before and after survey” which people complete before a major event or experience and then again afterwards.



3.1. Definition

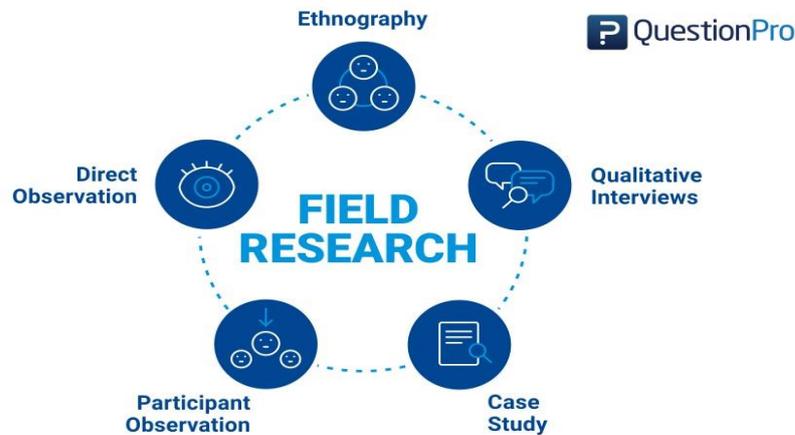
A survey is a purely theoretical type of research. It is probably the most common type of research. **The major function** of surveys is collecting information which can be analysed to produce conclusions.

The purpose of a survey is: describing what is going on to obtain the relevant facts and to state them quantitatively. Surveys can also help in explaining things, either by identifying the causes of changes which have occurred, or through analysis of the relationship between facts which have arisen from descriptive surveys.

3.2. Importance of Surveys

Surveys can be used to predict future changes, i.e., according to the importance, the nature, and timing of the changes, and with a small amount of common sense the surveyor can predict the result. Surveys can be used by unexperienced researchers to produce useful results.

3.2.1. Observation Surveys



3.2.1.1. Participant and Non-Participant Observation

The most formalised observation techniques are used when observation actually forms one of the methods used in a research project. Studies which involve observing people can be divided into two main categories, namely **participant and non-participant observation**.

In participant observation studies, the researcher becomes (or is already) part of the group to be observed. This involves fitting in, gaining the trust of members of the group and at the same time remaining sufficiently detached as to be able to carry out the observation. The observations made might be based on what people do, the explanations they give for what they do, the roles they have, relationships amongst them and features of the situation in which they find themselves. The researcher should be open about what s/he is doing, give the participants in the study the chance, see the results and comment on them, and take their comments seriously.

In non-participant observation studies, the researcher is not part of the group being studied. The researcher decides in advance precisely what kind of behaviour is relevant to the study and can be realistically and ethically observed. The observation can be carried out in a few different ways. For example, it could be continuous over a set period of time (e.g. one hour) or regularly for shorter periods of time (for 60 seconds every so often) or on a random basis. Observation does not only include noting what happened or was said but also the fact that a specific behaviour did not occur at the time of observation.

3.2.1.2. Participant Observation

It is suggested by Robert Townsend when he says:

Call yourself up when you are off on a business trip or a vacation, pretend you are a customer. Telephone some part of your organisation and ask for help. You'll run into some real horror shows... Then try calling yourself up and see what indignities you have built into your own defences.

It is the traditional method used in research and means that the investigator will move into the community attempt to find some role to play at least as a marginal member, i.e., putting himself in the place of the client or the user and seeing what is happening.

3.2.1.3. Non-participant Observation

In which the researcher remains detached from the activity under observation and watches and records what is going on.

3.2.1.4. Observational Trials (examples)

Observational trials study health issues in large groups of people but in natural settings. **Longitudinal** approaches examine the behaviour of a group of people over a fairly lengthy period of time e.g. monitoring cognitive decline from mid to late life paying specific attention to diet and lifestyle factors. In some cases, the researchers might monitor people when they are middle-aged and then again after 15 years and so on. The aim of such studies is usually to determine whether there is a link between one factor and another (e.g. whether high alcohol consumption is correlated with dementia). The group of people involved in this kind of study is known as a **cohort** and they share a certain characteristic or experience within a defined period. Within the cohort, there may be subgroups (e.g. people who drink moderately, people who drink heavily, people who binge drink etc.) which allow for further comparisons to be made.

In some cases, rather than following a group of people from a specific point in time onwards, the researchers take a **retrospective** approach, working backwards as it were. They might ask participants to tell them about their past behaviour, diet or lifestyle (e.g. their alcohol consumption, how much exercise they did, whether they smoked etc.) They might also ask for permission to consult the participants' medical records (a chart review). This is not always a reliable method and may be problematic as some people may forget, exaggerate or idealise their behaviour. For this reason, a prospective study is generally preferred if feasible although a retrospective pilot study preceding a prospective study may be helpful in focusing the study question and clarifying the hypothesis and feasibility of the latter (Hess, 2004).

Observing and recording events or situations is the oldest form of research (it is often overlooked). History is based on observation, recording, and classifying events while in social sciences different technologies have been developed to improve our ability to notice what is going on and to record in a form suitable for analysis.

3.2.1.5. Advantages of Observation Surveys

- It is a straightforward research method.
- It provides the researcher with direct experience of a service (a living experiment).
- It avoids the sort of bias from respondents, which other research methods introduce, i.e., to be objective.

The client is undisturbed and it is possible to record undistorted (spontaneous) behaviour.

3.2.1.6. Disadvantages

- Time consuming, i.e., the observer might wait for a long period of time to get the results.
- The researcher is unable to see all the activity (unable to see it all).
- The people being observed may begin to behave differently, i.e., no one likes to be watched, and we all modify our behaviour accordingly.
- The line between observation and inference is a fine one.

Table. 4

Advantages and Disadvantages of Non-participant Observation

Advantages	Disadvantages
1. Provides a basis for description which is not possible through armchair speculation alone.	a) Number of visits limited by logistics
2. Empirical verification: you can believe what you see yourself.	b) Possible effect of presence of observer, so generalisation from problematic.
3. It has validity: highly credible when viewed as a report of what has actually taken place by disinterested observer.	c) Time consuming to develop observer schedules and to train additional observation style.
4. Outsiders provide a different perspective from those insiders closely connected with the project in which they have made a personal investment.	d) Possible inability of outsiders to correctly interpret behaviour in a given setting; or to know what to look for.
	e) High inference categories of observation liable to variable interpretation staff.
	f) Practical difficulties: petrol rationing, hidden agendas and mistaken assumptions, cancellations, scheduling problems; time consuming, frustrating.

3.2.1.7. Hints on Using Observation Methods

- Be relevant to the study and clear.
- Work out an economical way of recording.
- It is not wise to rely on an ability to read the handwriting. Try to avoid the highly undeniable situation where you (researcher) are faced with the enormous task of analysing a mass of barely legible observation containing much information which earlier processing might have shown to be unnecessary.

3.2.2. Questionnaire Surveys

3.2.2.1. Definition

It is the most commonly used research method. Questionnaires are extremely flexible and can be used to gather information on almost any topic from people.

The most common type of questionnaires are closed questions or multiple-choice questions, i.e., choosing between:

- ⊙ A number of alternatives.
- ⊙ Another type of questionnaires is yes-no questions.
- ⊙ The third type of questionnaires is answered by using a rating scale, as an example;

Please indicate how do you feel about the LMD system.

Table. 5

The Rating Scale in Questionnaires

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Lectures				
Exposes				

- ⊙ Open questionnaires produce a wide range of answers and require more effort from the respondent and they have limitations. They are less likely to be completed.
- ⊙ They are most effective when used by people who are used to express themselves in writing.
- ⊙ Indeed, it is desirable to follow a close question with an open one to obtain any additional and relevant information.

The Place of Questionnaires in the Research Process



3.2.2.2. Advantages of Questionnaires

- + Questionnaires are cheap, flexible and can be used to enable the researcher to follow up certain points at another time.
- + Consistent format and style.
- + Avoiding the problem of respondents beginning an interview by answering in a very defensive way.

3.2.2.3. Disadvantages

- ✚ The lack of qualitative depth to the answers and the resultant superficiality.
- ✚ By using interviewers, it is possible to probe beneath and initially superficial response.
- ✚ It is not usually possible to verify what appears to be an inaccurate response.

Table. 6

Advantages and Disadvantages of Questionnaires

Advantages	Disadvantages
a. More reliable: -all respondents are asked the same questions in the same way and so they impose infirmity on data.	i. Low response rates.
b. Anonymity easily protected.	ii. Closed items provided “shallow”
c. Larger sample	iii. Open questions require extended writing rather than oral response; more demanding; possible literacy problems.
d. Variety of questions	iv. Responses are often rushed, with questions filled in hurriedly.
e. Respondents can think about answers.	v. Difficulties of making questions clear, unambiguous.
f. Economical, time saving because can be mailed to respondents at many different sites	g. Lack of flexibility.

3.2.2.4. Hints of Using Questionnaires

- ✚ The golden rule is to keep things short and simple.
- ✚ Prepare an initial, draft and expect to reduce it in length by at least 50%.
- ✚ Questionnaires have to be written in a plain (simple) English.
- ✚ A well-designed questionnaire will help to achieve a good response rate.

3.2.2.5. The basic rules to keep in mind:

- ✚ Get the beginning right.
- ✚ Make it personal but unpatronizing (not inferior).
- ✚ Use simple words.
- ✚ Shorten the sentences.
- ✚ Keep sentence construction simple.
- ✚ Use basic punctuation.
- ✚ Use enough type size.
- ✚ Avoid block capitals.
- ✚ Aim for an overall pleasing effect.
- ✚ Avoid emotive words.

- ✚ Avoid ambiguity.

3.2.3. Interview Surveys



3.2.3.1. Definition

They are of great deal in common with questionnaire surveys. The structured interview survey requires an interview schedule which needs to be designed in much the same as a questionnaire.

3.2.3.2. Types of Interview

3.2.3.2.1. Structured: It has a schedule

3.2.3.2.2. Semi-structured: It requires a heavy relevance on the interview schedule.

3.2.3.3. Depth of Interview Surveys

To select a sample of people to a detailed and inevitably less structured encounter.

3.2.3.4. Advantages of Interview Surveys

- ❖ Possibility to achieve a complete response with different categories of a sample.
- ❖ Interviews are more personal than questionnaires and tend to produce better response rate.
- ❖ Obtaining the result with greater depth.
- ❖ Making a survey much more responsive to early results.

3.2.3.5. Disadvantages of Interview Surveys

- ❖ The difficulty of analysing obtained information.
- ❖ Ensuring a high degree of consistency in the present action of the interviews.
- ❖ It is difficult to be sure that the results were not influenced in some way by the interviewer.

3.2.3.6. Hints on Using Interview Surveys

- ❖ The schedule needs to be very carefully designed and thought has to be given to how questions will sound while spoken.
- ❖ Clear introducing statement.
- ❖ Both questions and instructions should put the respondent at ease.
- ❖ Verify whether all questions were answered and complete.
- ❖ The form should be so designed that the interviewer can record the information.

3.2.3.7. When carrying out the interview, try to be:

- ❖ Pleasant but not pushy.
- ❖ Objective but not detached.
- ❖ Detached but not laid back.
- ❖ Do not be too eager to note down responses.
- ❖ Avoid getting into long theoretical discussions.

4. Case Studies

Case studies usually involve the detailed study of a particular case (a person or small group). Various methods of data collection and analysis are used but this typically includes observation and interviews and may involve consulting other people and personal or public records. The researchers may be interested in a particular phenomenon (e.g. coping with a diagnosis or a move into residential care) and select one or more individuals in the respective situation on whom to base their case study/studies. Case studies have a very narrow focus which results in detailed descriptive data which is unique to the case(s) studied. Nevertheless, it can be useful in clinical settings and may even challenge existing theories and practices in other domains.



4.1. Definition

Case studies, evaluation, and action research are not so much research methods. They are included here since they frequently supply the framework with other methods which are used for specific purposes.

Case studies is used for **two purposes**:

First of all, reducing the scale of the research by focusing it on a smaller number of units.

Second, increasing the range of different units within the study.

The first approach is similar to sampling except that it is **unusual to analyse more than ten case studies**.

Case studies involves the use of a number of research methods primarily questionnaire and interview surveys.

4.2. When Do We Use Case Studies?

Case Studies are used to:

- ✓ Understand complex organisation problems.

- ✓ To diffuse causes and effects of change.
- ✓ It allows the researcher to focus on something which is sufficiently manageable to be understood in all its complexity.

4.2.1. Advantages

- ✓ The resources available for research are always scarce and case studies provides a means of covering a large amount of ground for an acceptable cost.
- ✓ Case studies provide a means in looking in some depth at complex problems.
- ✓ It is possible to compare a number of different approaches to a problem in sufficient detail in order to be able to take of (draw out) lessons that have general applicability.
- ✓ It is a time-saving process (organisational change).
- ✓ It is a deep research method.

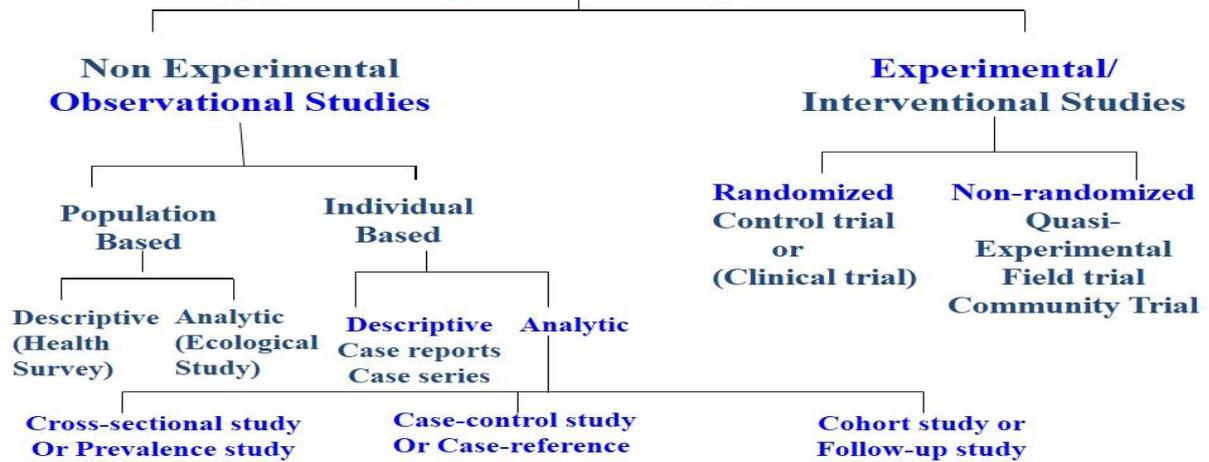
4.2.2. Disadvantages

- ✓ They lack the statistical variety of samples which have been properly sampled.
- ✓ The research can extend over a number of months or years, i.e., the world does not wait for events and they are overcome by events because the research can distort events.
- ✓ In organisational dynamics, it is almost impossible to avoid the research process having a significant impact in the course of events.
- ✓ It alters people's perception of their work which causes them to adapt a more rational and systematic approach task.

4.2.3. Hints on Case Studies

- Set up the research.
- Work out the extent to which the research will impinge (have an effect on) the operation of the case studies.
- The researcher should adopt neutrality.
- Determine the nature and the scope of the study.
- Select the case studies carefully.
- Be clear about whether the purpose is directly comparable or represents a range of different alternatives (another choice).
- After obtaining the co-operation, the researcher must establish an effective working relationship (with those being researched).
- Overcome the hostility, dispel the suspicion and provide the practitioners with enough information in order to reassure themselves.
- The researcher must accept the practitioner as an equal.
- Take care to ensure that the information is not subjective (avoid bias/be objective).

Types of Epidemiological Studies



3

5. Applied Research

The applied research is a kind of research that takes into account the results drawn from the conceptual analysis. In this context, it tries to test a claim or a hypothesis. In fact, the aim of this research, in translation studies, is to improve both translation theory and practice.

5.1. Definition

Applied research is a methodology used to solve a specific, practical problem of an individual or group. The study and **research** is used in business, medicine and education in order to find solutions that may cure diseases, solve scientific problems or develop technology.

5.2. Difference Between Basic and Applied Research

Applied research is **research** that seeks to answer a question in the real world and to solve a problem. **Basic research** is **research** that fills in the knowledge we don't have; it tries to learn things that aren't always directly applicable or useful immediately.

5.3. Difference Between Action and Applied Research

Basic **research** or fundamental **research** contributes to the development of knowledge/theory. **Applied research** is socially useful - application of the knowledge generated to social concerns. **Action research** is useful in solving an immediate, specific problem. **Action research** is very useful in solving classroom problems.

5.4. Importance of Applied Research

How **Applied Research** is used in psychology. This type of **research** plays an **important** role in solving everyday problems that often have an impact on life, work, health, and overall well-being. **Applied research** is used to find solutions to everyday problems, cure illness, and develop innovative technologies.

Lesson Eight: Other Research Strategies

1. Archival Research

Archives exist both to preserve historic materials and to make them available for use. The purpose of this section is by outlining the functions and procedures of archives. It is also designed both for first-time archives users and scholars who have already conducted research in archives. The content covers:

- How archives function.
- How to identify appropriate archives for your research.
- How to access historical materials and research at an archive.

Repositories and their collecting scopes and practices may differ, but the principles in this guide should assist you in accomplishing your research goals at any archival institution.

Archival research is **research** involving primary sources held in an **archive**, a Special Collections library, or other repository. **Archival** sources can be manuscripts, documents, records (including electronic records), objects, sound and audio-visual materials, or other materials.

Archival Research. **Archival research** is a method of collecting data from sources that already exist. ... An **example of archival research** would be a psychologist looking at mental institution records from the 1900s to determine the prevalence of depressive symptoms in patients at the time.

1.1. Definition of Archives and How They are Different from Libraries

Libraries in towns (public libraries) or universities (academic libraries) can generally be defined as “collections of books and/or other print or nonprint materials organized and maintained for use.” (Joan, 2010). Patrons of those libraries can access materials at the library, via the Internet, or by checking them out for home use. Libraries exist to make their collections available to the people they serve.

Archives also exist to make their collections available to people, but differ from libraries in both the types of materials they hold, and the way materials are accessed.

- **Types of Materials:** Archives can hold both published and unpublished materials, and those materials can be in any format. Some examples are manuscripts, letters, photographs, moving image and sound materials, artwork, books, diaries, artifacts, and the digital equivalents of all of these things. Materials in an archive are often unique, specialised, or rare objects, meaning very few of them exist in the world, or they are the only ones of their kind.

Examples of archival materials include: letters written by Abraham Lincoln (Abraham Lincoln Presidential Library and Museum, Springfield, Illinois), Frank Lloyd Wright’s architectural drawings (Avery Architectural and Fine Arts Library, Columbia University, New York), photographs documenting the construction of the Panama Canal (Transportation History Collection, University of Michigan Special Collections), and

video footage from *I Love Lucy* television episodes (the Paley Center for Media, New York and Los Angeles).

- **Access to Materials:** Since materials in archival collections are unique, the people (archivists) in charge of caring for those materials strive to preserve them for use today, and for future generations of researchers. Archives have **specific guidelines** for how people may use collections (which will be discussed later) to protect the materials from physical damage and theft, keeping them and their content accessible for posterity.

Example: Checking out a book from a library causes it to eventually wear out, and then the library buys a new copy of the same book. Checking out the handwritten diary of a historic figure from an archive would cause the same physical deterioration, but the diary is irreplaceable.

Note that there is a great deal of overlap between archives and libraries. An archive may have *library* as part of its name, or an archive may be a department within a library.

Example: The Performing Arts Reading Room in the Library of Congress.

1.2.Types of Archives

There are many varieties of archives, and the types of materials they collect differ as well. Defining your research topic and knowing what sorts of materials you are looking for will help you determine the appropriate institutions to contact. Here is a brief overview of repository types:

- **College and university archives** are archives that preserve materials relating to a specific academic institution. Such archives may also contain a “special collections” division (see definition below). College and university archives exist first to serve their parent institutions and alumni, and then to serve the public.

Examples: Stanford University Archives, Mount Holyoke College Archives.

- **Corporate archives** are archival departments within a company or corporation that manage and preserve the records of that business. These repositories exist to serve the needs of company staff members and to advance business goals. Corporate archives allow varying degrees of public access to their materials depending on the company's policies and archival staff availability.

Examples: Ford Motor Company Archives, Kraft Foods Archives.

- **Government archives** are repositories that collect materials relating to local, state, or national government entities.

Examples: The National Archives and Records Administration (NARA), the Franklin D. Roosevelt Presidential Library and Museum, the New York State Archives, City of Boston Archives.

- **Historical societies** are organisations that seek to preserve and promote interest in the history of a region, a historical period, nongovernment organisations, or a subject. The collections of historical societies typically focus on a state or a community, and may be in charge of maintaining some governmental records as well.

Examples: The Wisconsin Historical Society, the National Railway Historical Society, the San Fernando Valley Historical Society.

- **Museums** and archives share the goal of preserving items of historical significance, but museums tend to have a greater emphasis on exhibiting those items, and maintaining diverse collections of artifacts or artwork rather than books and papers. Any of the types of repositories mentioned in this list may incorporate a museum, or museums may be stand-alone institutions. Likewise, stand-alone museums may contain libraries and/or archives.

Examples: The Metropolitan Museum of Art, Smithsonian National Air and Space Museum.

- **Religious archives** are archives relating to the traditions or institutions of a major faith, denominations within a faith, or individual places of worship. The materials stored in these repositories may be available to the public, or may exist solely to serve members of the faith or the institution by which they were created.

Examples: United Methodist Church Archives, American Jewish Archives.

- **Special collections** are institutions containing materials from individuals, families, and organisations deemed to have significant historical value. Topics collected in special collections vary widely, and include medicine, law, literature, fine art, and technology. Often a special collections repository will be a department within a library, holding the library's rarest or most valuable original manuscripts, books, and/or collections of local history for neighbouring communities.

Examples: Special Collections Research Centre at the University of Chicago, American Philosophical Society Library.

1.3. Finding and Evaluating Archives

How do you locate archives that might have materials appropriate for your research? In addition to using online search engines like Google, here are some resources to consult:

Consult **bibliographies** and works cited sections in books on your topic. Where did the information come from?

- ✚ Contact other **experts** in the field. Which repositories did they visit for their research?
- ✚ Look for **websites** dedicated to your topic. Do they list any archives?
- ✚ Talk to a reference librarian at your local library about accessing the **WorldCat** database, which includes listings for archival materials stored in libraries all over the world.
- ✚ Check **Archive Finder** at <http://archives.chadwyck.com/home.do>. This site contains listings from thousands of American and British archives (requires purchase or subscription).

- ✚ Check **ArchiveGrid** at <http://beta.worldcat.org/archivegrid/>. This database contains nearly a million collection descriptions from thousands of libraries, archives, and museums.
- ✚ Check **ARCHIVESCANADA.ca** at <http://www.archivescanada.ca/>. This gateway to archival resources from over eight hundred repositories across Canada contains linked archival repository databases for each province.
- ✚ Check **Archives Wiki** at http://archiveswiki.historians.org/index.php/Main_Page. Sponsored by the American Historical Association, this page links to several archives from around the world and provides commentary about the archives from a researcher perspective.
- ✚ Browse the website of the **Library of Congress** at <http://www.loc.gov/index.html>. The Library of Congress is America's national library, and the world's largest.
- ✚ Visit the website of the **National Archives and Records Administration (NARA)** at <http://www.archives.gov/>. NARA oversees the preservation of United States federal government materials. There are two additional resources that can be accessed through NARA:

AAD (Access to Archival Databases) at <http://aad.archives.gov/aad/> is a search engine for some of NARA's holdings of electronic records.

ARC (The Archival Research Catalogue) at <http://www.archives.gov/research/arc/> is an online catalogue of NARA's nationwide holdings in the Washington, DC area, regional archives, and presidential libraries.

- ✚ Search the **National Union Catalog of Manuscript Collections (NUCMC)** at <http://www.loc.gov/coll/nucmc/>. NUCMC provides descriptions of manuscript and archival collections from a wide variety of American repositories. The information produced by NUCMC is shared with the WorldCat database (mentioned above).
- ✚ Explore the **Smithsonian Institution Archives** at <http://siarchives.si.edu/>. The Smithsonian Institution Archives is the record keeper of the Smithsonian—collecting, preserving, and making available the official records of the Smithsonian's 19 museums, nine research centres, and the National Zoo.
- ✚ The next step is determining the extent of materials that suit your research needs in an individual archive. Since every repository is different (by size, funding, technological advancement, hours, collecting areas, regulations, etc.), even experienced researchers must familiarise themselves with how a given repository describes its holdings. Utilising the tools listed below will help ensure a thorough evaluation of an archive:

Websites: Check the website of the archives you are evaluating, which will often list the repository's main collection strengths and the topics the materials address. Monitor websites for updates such as new collection descriptions and the addition of digital resources.

Catalogues and Databases: Determine whether the archive you are evaluating has a link on its website to catalogues or databases (similar to those in a library) allowing you to search holdings by subject, keyword, title, author, etc. Many catalogues and databases will link you to *finding aids* which will provide more detail about what a specific collection holds. If searching catalogues is new for you, ask a reference librarian at a local library for assistance.

Finding Aids: A finding aid (sometimes called inventory, collection listing, register, or calendar) is a text document providing a description of the contents of a collection, just like a table of contents outlines the contents of a book. By using a finding aid, a researcher gets an understanding of a collection in its entirety, sees the relationships between its component parts, and locates the portions of a collection pertinent to research. Finding aids sometimes provide narrative portions describing the background of a collection (how and when it was formed, how the archives acquired it, etc.), and how the archival staff have arranged or ordered the materials in the collection.

If the archive you are evaluating provides direct access to finding aids on its website, browse or search the finding aids for content relating to your research.

Examples of a variety of finding aids can be viewed through these finding aid consortia websites:

Arizona Archives Online <http://azarchivesonline.org>

The Online Archive of California <http://www.oac.cdlib.org/>

Archives West <http://archiveswest.orbiscascade.org>

Rocky Mountain Online Archive <http://rmoa.unm.edu>

Texas Archival Resources Online <http://lib.utexas.edu/taro>

Note that finding aids come in all kinds of formats. Some archives just have paper copies to use on-site, while others have word processing documents, PDF, or HTML/XML finding aids that can be viewed on their websites. Downloading and print options vary by repository. Some archives may provide digital copies of finding aids upon request.

Digital Collections: Many archives digitise materials (photographs, meeting minutes, reports, letters, audio-visual recordings, etc.) from their collections and make them available on their websites. Digitisation enables the researcher to view materials without visiting the archives in person. Some digital content is full-text searchable, allowing you to enter words pertinent to your research (such as names or terms) into a search box and then search the document to see whether instances of those words appear. Examine the repository website, catalogues, databases, and finding aids to see whether links to digital collections exist. *However, be aware that digital collections often reflect just a fraction of the total holdings of a repository.* There may be non-digitised materials at the same institution that are also pertinent to your research. Search holdings listings carefully and ask the archival staff for assistance in accessing non-digitised content.

Note that when searching digital collections online it can sometimes be unclear whether the items you are viewing represent a complete collection or are part of a larger collection. Try to determine the highest collection level for the most complete overview of related items.

Examples of digitised collections may be viewed on the Minnesota Digital Library website at <http://www.mndigital.org/reflections/>.

Archival Staff: One of the most important ways to evaluate the holdings of an archives is contacting an archival professional who oversees the collections. Archival staff can point you toward resources you may have overlooked. Job titles for such staff positions include archivist, librarian, reference archivist, reference librarian, curator, and records manager. After you have examined the catalogues, finding aids, and website of an archives, call or email the repository to confirm your findings and conclusions. If you find specific materials that seem particularly important during your search, write down the titles, call numbers, or other unique methods of identification from those materials and share them with the staff. Inquire whether you should set up an appointment time to visit and view the materials.

Example: “I am doing a research project involving [describe the purpose, background, and context of your project]. I have already viewed the following [finding aids, catalogues, etc.] on your website, and thought that these specific resources would be useful for my research: [List finding aid or collection titles, book titles, etc. that you have found. Be as specific as possible.] Do you have any recommendations of other relevant materials in your collections? May I visit your repository next Wednesday afternoon to view these items?”

1.4. Requesting Materials Remotely

Once you have identified materials that will aid your research, the question then becomes how to access them. Policies regarding access vary among archives, but here are some questions to ask yourself, or the archival staff, to determine whether you can obtain access to materials without visiting the archives in person:

Are the materials you want to see available through **interlibrary loan**, meaning that the archives would send them to a library near you where you could view or borrow them? Some archives do lend out select materials (such as printed materials or microfilm), but rarely loan primary or original documents.

Are the materials you want **available through libraries** other than the repository at which you found them? Especially in the case of published and printed materials, other libraries might own the same materials and allow them to be loaned. The WorldCat database (mentioned in the “[Finding and Evaluating Archives](#)” section of this guide) is an excellent resource when looking for alternate lending libraries.

Will the archives provide **scans or photocopies** of the materials you wish to consult? What are the fees for those services? Are there limits on the amount of material that can be requested? Look for policies on photocopying and digital reproduction on the repository’s website, or contact a staff member and inquire.

Will the archives allow a **research assistant** to access materials on your behalf? Some archives may have recommended assistants or research services available to patrons unable to visit the archives in person. If not, hiring someone to help with your research can be a great option for remote access. Consider hiring a local graduate student or ask a friend living near the repository.

Do you have a **simple question** that can be answered by having the archival staff view the materials on your behalf? Archivists routinely answer reference questions for researchers, so if the information you need can be retrieved in a short amount of time, there is a good chance they can relay it to you without having you come in person.

1.5.Planning to Visit an Archives

If you cannot view the materials you want via the repository's website or through the above-mentioned methods, you will need to visit the archives in person. Whether you are travelling a long distance to visit the archives or visiting a local one, it is always a good idea to plan ahead for your visit. Here are some arrangements to consider:

Inform the archival staff of the date(s) that you intend to visit and the materials you would like to see. The staff can notify you of any special circumstances where either the facility or the materials are unavailable. Many archives store materials in off-site facilities, typically due to space constraints. If the materials you are requesting are stored off-site, they may take several hours or days to retrieve. Alerting the staff to your visit and the materials you want to see may enable you to access those materials upon your arrival instead of having to wait for them.

Confirm the repository's scheduled **visiting hours**. Are there any special closings on the dates you intend to visit? If the hours are too limited to accommodate your schedule, can any alternative arrangements be made? Many repositories lack the staffing and funding required for having extensive hours, but some may offer options to meet researcher needs. If a repository has weekend and evening hours, professional archival staff may not be present at those times. This may limit the services available (such as photocopying, material retrieval, etc.), so ask if any services are limited during those hours. Additionally, ask whether there are any **entrance fees** to conduct research there.

Examine the available options for **accommodations, food, and transportation**. The archives may have special arrangements that researchers can utilise. Inquire about **parking** near the repository if you are bringing a vehicle with you.

Check to see whether there are any **limits on the amount of materials** you may request or specific **request times**. Some archives may allow you to have multiple boxes of materials at a time; others only a single box, book, or folder at a time. The amount of materials you may access could impact your work flow and time spent at the archives, so it is best to inquire ahead about material request limits. The times when material requests may be placed can also vary by repository.

Review **guidelines** for using materials at the archives. Look for these to be posted on the repository website, or ask a staff member. Typical repository guidelines will be explained in more detail in the next section, but guidelines between archives will vary.

Examine the **reproduction policies** of the archives. Regulations and fees for requesting photocopies, scans, digital photography, microfilming, and reproductions of photos and audio-visual materials vary among archives.

Ascertain whether the archive offers **Internet access** and accommodates personal **laptop computers**, and clarify the Internet access procedures. If Internet access is not available, determine the nearest location where researchers may access the web.

Ask whether any materials in the collection **circulate** or are **loaned out**. Are there other libraries nearby that offer guest library accounts? Sometimes a local library will have resources to aid your research that are available for loan or accessible when the archives is closed.

Inquire whether any opportunities for **research grants** or **funding** are offered by the archives. Extensive research projects may require spending a large amount of time at one or several archives. Some repositories (or related organisations or academic institutions) may offer financial assistance to researchers.

Schedule some additional **time for the unexpected**. Discoveries and new questions unearthed during research may lead you down different avenues than you had originally anticipated. Certain tasks—like deciphering hard-to-read handwritten documents or researching primary materials—may take more time. Also, consider the option of a return visit to the archives in case you need to verify information, check additional materials, or pursue something you had not thought of earlier.

1.6. Typical Usage Guidelines in Archival Repositories

Researchers may be surprised initially at how different it is to use materials in an archive versus a public or academic library. Archives have access guidelines designed both to help preserve materials and protect them from theft, thus ensuring they will remain available for future researchers. This section will list some typical usage guidelines found at archives and the reasons behind them. Guidelines will differ between repositories, so always check what guidelines an archive has in place.

Registry and personal identification: Many archives ask researchers to fill out an application, registry card, online form, or acquire a researcher card before they begin using materials. The forms typically include name, address, institutional affiliation, materials to be used, and a description of the research project. Photo IDs may also be requested. Such registration practices familiarise the archival staff with the researchers to better serve their research needs and interests, and may also be used to aid a criminal investigation in the event that theft is discovered. Some archives also require a note of recommendation or special permissions before admitting researchers.

Removal of coats and bags: Another method used to discourage theft is requiring that researchers remove bulky outer clothing and store purses, bags, binders, and laptop cases outside of the research area. Many archives have lockers or other monitored areas that researchers can use to store personal possessions. If the only storage option is a nonsecure environment, such as a public coat rack, be sure to remove valuable items like keys and wallets from bags and pockets.

No food, drink, or gum: This guideline is designed to help preserve the collections. Spills can irreparably damage documents or require costly repairs by a conservator. The presence of food may also attract insects or rodents that infest archival materials.

Use of pencil only: This is a preservation practice in case accidental marks are made on archival materials; pencil can be erased while pen marks cannot.

Request forms: Forms are used in a variety of situations, from “call slips” that specify the boxes or books a researcher would like to see, to forms requesting reproductions (such as photocopies). Some forms have very practical uses, like verifying that the correct materials are retrieved, calculating fees, or keeping track of usage for statistical and preservation purposes. By recording exactly which materials were used and by whom, forms can also serve as a theft deterrent. Finally, forms can be useful in notifying the researcher of any legal requirements to take into consideration for how materials are used.

Example: Photocopies of unpublished materials provided for a researcher may require additional permissions before they are published. The researcher’s signature on the request form indicates that the signer has read and understood these stipulations, and that the archival repository has done its duty informing researchers that those conditions exist.

Gloves: In most cases clean hands free of lotions or perfumes are sufficient for handling materials. Gloves may be necessary for handling objects or photographs in order to protect the materials from the oils and other residues left by hands. The archives should provide gloves if they are required.

Laptops, cell phones, cameras, recorders, and personal scanners: Many archives allow the use of cameras, laptops, and other personal digital devices, but restrictions may exist. Materials may require permissions before they are reproduced, and the lights used by cameras and scanners can cause text and images on documents to fade if they are overexposed. Hence, guidelines in these areas are for security and preservation purposes, as well as for ensuring that all researchers can work in a relatively quiet, distraction-free environment. Archival staff may also ask to inspect any devices researchers bring with them before entering or leaving the research area.

Careful handling and maintaining order: To ensure that materials are maintained for future use, all archives ask researchers to handle materials carefully. While older materials are generally thought to be more fragile, even new materials need to be handled with care so they remain available to the next generation of researchers. Archives may provide specialised tools like book pillows to help preserve materials during use.

It is also important that materials remain in the order in which the researcher received them so they can be located later and observed in their proper contexts. Misfiling or changes in order can lead the archival staff to assume that items are missing and inconvenience future researchers. Repositories generally provide place markers to help a researcher keep materials in order and to mark items requested for photocopying. An archive may have additional guidelines like removing one folder from a box at a time, leaving re-shelving to archival staff, etc.

With good preparation and an understanding of how archives function, archival research can be very rewarding. Archives have incredible materials waiting for you to explore and archivists ready to help. Good luck with your research—wherever it takes you.

2. Ethnographic Research

2.1. Definition

Ethnographic research is a qualitative method where researchers observe and/or interact with a study's participants in their real-life environment such as culture-sharing group's shared patterns of behaviour, beliefs, and language that develop over time. **Ethnography** was popularised by **anthropology**, but is used across a wide range of social sciences. It may range from an hour to weeks or months.

Within the field of usability, user-centred design and service design, ethnography is used to support a designer's deeper understanding of the design problem – including the relevant domain, audience(s), processes, goals and context(s) of use.

The aim of an ethnographic study within a usability project is to get 'under the skin' of a design problem (and all its associated issues). It is hoped that by achieving this, a designer will be able to truly understand the problem and therefore design a far better solution.

2.2. Methods Associated with Ethnography

Anthropological ethnographers often live amongst a group/society for a year or more, in order to learn about them. This fully immersive, long-term 'live and work' approach to ethnography has not proven popular within the field of usability.

Part of the reason may involve cost, but it is also the case that anthropologists and usability practitioners are interested in different things. Anthropologists use ethnography in an attempt to fully understand as much as possible about an entire society. Usability practitioners are usually only interested in learning information that will support their reasoning on a specific design problem.

We would argue that deep, immersive 'live and work' ethnography is rarely required within the field of user-centred design. However, short ethnographic studies can be very useful for user-centred projects. For example: in order to understand the way in which a Merchant Bank trades and operates, a usability consultant might conduct an ethnographic study by working and socialising with its employees for a month.

Individual methods which are available within an ethnographic study include: participant observation, interviews and surveys. All of these ethnographic methods can be very valuable in gaining a deeper understanding of a design problem. Usability practitioners often make use of these in order to develop their understanding of the relevant domain, audience(s), processes, goals and context(s) of use.

2.3. When to Use Ethnography

Ethnography is most useful in the early stages of a user-centred design project. This is because ethnography focuses on developing an understanding of the design problem. Therefore, it makes more sense to conduct ethnographic studies at the beginning of a project in order to support future design decisions (which will happen later in the user-centred design process).

Ethnographic methods (such as participant observation) could also be used to evaluate an existing design – but their true value comes from developing an early understanding of the relevant domain, audience(s), processes, goals and context(s) of use.

We would normally recommend that ethnographic methods are used for very complex and/or critical design problems. More complex design problems (in terms of their domain, audience(s), processes, goals and/or context(s) of use) are likely to need the deeper understanding which ethnographic studies can bring. Equally, highly critical systems (where failure or error can lead to disaster) could also justify significant ethnographic research.

For example: An insurance company wanted to re-design their system dealing with the processing of insurance claims. This system had evolved over many years and actually represented a patchwork of previous systems. The ‘claim processing’ supported by this ‘system of systems’ is itself a highly complex process. In this example, ethnographic research should probably be considered.

2.3.1. Advantages of Ethnography

One of the main advantages associated with ethnographic research is that **ethnography can help identify and analyse unexpected issues**. When conducting other types of studies, which are not based on in-situ observation or interaction, it can very easy to miss unexpected issues. This can happen either because questions are not asked, or respondents neglect to mention something. An ethnographic researcher’s in-situ presence helps mitigate this risk because the issues will (hopefully) become directly apparent to the researcher.

Ethnography’s other main benefit is generally considered to be **its ability to deliver a detailed and faithful representation of users’ behaviours and attitudes**. Because of its subjective nature, an ethnographic study (with a skilled researcher) can be very useful in uncovering and analysing relevant user attitudes and emotions.

2.3.2. Disadvantages of Ethnography

One of the main criticisms levelled at ethnographic studies is the amount of time they take to conduct. As discussed previously, ethnographic studies do not always require a long period of time, but this consideration is nonetheless valid. Because of its richer output, an ethnographic study will tend to take longer to generate and analyse its data than many other methods.

During previous ethnographic studies, we have found that it is possible that subjects may not act naturally during a short study. Longer studies normally counter-act this because the subjects grow to trust the researcher and/or get tired of any pretence.

For example: During the first week of an ethnographic study into an insurance claim processing system, all the subjects were observed to be following the strictest interpretation of the correct procedures. As time progressed, however, it became increasingly apparent that almost all employees had ‘work-arounds’ and ‘short cuts’ which were liberally used in order to speed things up. These behaviours were very instructive in helping to re-design the process flow. Had the researcher not stayed in-situ long enough to observe these, they may have gone unrecorded.

2.4.Risks associated with ethnography

As stated before, ethnographic studies consist of the researcher observing and/or interacting with subjects within the environment which the (future) design is intended to support. The two main potential weaknesses with ethnographic studies are:

◆ **Researcher**

Ethnographic researchers need to be very highly-skilled to avoid all the potential pitfalls of an ethnographic study. Some of these include the detail & completeness of observations, as well as potential bias (and mistakes) in data collection or analysis.

◆ **Subjects**

It is essential that any studies' subjects are as true a representation of the larger user audience as possible (assuming that the study has been designed this way). It is also vital that the subjects are open and honest with the researcher. Of course, both of these issues are related to the quality of the researchers themselves and their role in the study's design.

As we can see from the above, most of the risks associated with ethnographic studies relate to the researcher, either directly or indirectly. This, of course, means that the choice of ethnographic researcher is critical to a study's success. We recommend choosing a researcher with a proven background of past involvement in successful projects across varying domains.

In a nutshell, it is generally recommended that an ethnographic approach may be suitable for the early stages of a user-centred project that deals with a particularly complicated or critical design challenge. This is because ethnographic methods allow a particularly deep understanding of a design problem's domain, audience(s), processes, goals and context(s) of use. These ethnographic methods can also be very useful in discovering and exploring previously unknown issues.

Perhaps the most critical decision within an ethnographic study is the choice of ethnographic researcher. This individual will design, conduct and analyse the study's findings – so it is essential that they have the skill and experience to make sure the study is representative, accurate and fair.

3. Grounded Theory Research

3.1. Definition

Grounded theory (GT) is a research method concerned with the generation of theory, which is 'grounded' in data that has been systematically collected and analysed. It is used to uncover such things as social relationships and behaviours of groups, known as social processes. It was developed in California, USA by Glaser and Strauss during their study—'Awareness of Dying'. It is a general methodology for developing theory that is grounded in data which is systematically gathered and analysed.

3.2. Features of GT

- Data collection and analysis occur simultaneously.
- Categories and analytic codes developed from data. Pre-existing conceptualisations not to be used—this is known as theoretical sensitivity.
- Theoretical sampling used to refine categories.

- Abstract categories constructed inductively.
- Social processes discovered in the data.
- Analytical memos used between coding and writing.
- Categories integrated into a theoretical framework.

3.3. Carrying out a GT Study

First the area of interest is identified. Theoretical preconceptions should be avoided, although it is accepted this is difficult in practice. Analytical procedures and sampling strategies are then used and the study is finished when theoretical sampling reached all discussed below. Data collected may be qualitative or quantitative or a combination of both. Data collection methods often include in-depth interviews using open-ended questions. Questions can be adjusted as theory emerges. Observational methods and focus groups may also be used.

3.3.1. Theoretical Sampling

Glaser and Strauss (1967) first mentioned theoretical sampling and described a process of generating theory from data which includes collecting the data, then coding and analysing the data. Next the researcher makes a conscious decision about what further detail they feel needs exploring as the new theory develops. It usually takes place after some initial key concepts or categories have been identified, for example, you might decide to interview patients about their experience of heart failure. They may talk about systematic errors occurring in the general practice surgery. From this analysis of the data you may decide to approach and interview GPs to explore their views on patients' comments. Theoretical sampling therefore, is used to produce more data to endorse or refute the categories that have been identified in the previous analysis.

3.3.2. Theoretical Sensitivity

Theoretical sensitivity refers to the insight of the researcher. It concerns the researcher being able to give meaning to data, understand what the data says, and being able to separate out what is relevant and what is not. By being theoretically sensitive and using insight, the researcher is able to develop a theory that is grounded, theoretically dense, and cohesive. Sensitivity comes from several sources including (1) literature—in depth reading offers a rich understanding of the phenomena being studied; (2) professional and personal experience—offers an understanding of the events and topics being explored; (3) the analytic process—allows for insight and understanding of the phenomena.

3.4. Analysis of data in GT

There are three stages of data analysis in GT:

1. **Open coding:** this involves line by line coding where concepts and key phrases are identified and highlighted and moved into subcategories, then categories. This breaks the data down into conceptual components and the researcher can start to theorise or reflect on what they are reading and understanding—making sense of the data. The data from each participant will be 'constantly compared' for similarities.

2. Axial coding: at this stage relationships are identified between the categories, and connections identified.
3. Selective coding: this involves identifying the core category and methodically relating it to other categories. The relationships must be authenticated and categories refined. Categories are then integrated together and a GT identified.

Analytical notes are encouraged. These are notes to oneself to explain thought patterns in relation to the data analysis. Final theory is usually generated from the integration of several analytical memos.

☉ The Core Category

The core category is the chief phenomena around which the categories are built. Theory is generated around a core category. The core category should account for the variation found in the data, that is, the categories will relate to it in some way. The categories demonstrate how the core category is situated in the lives of those participating in the study.

3.5. Example of a GT Case Study

As illustrated, GT methodologies involve the construction of new theory through the analysis of data. In a study carried out by Beech *et al* (2012), the authors sought to explore patient participant experiences of recovery following surgical intervention for colorectal cancer. Beech *et al* (2012) opted to use GT because previous studies had sought to answer this research question by measuring quantifiable biomedical markers, such as symptoms of pain, insomnia or fatigue. According to the authors, there was a paucity of empirical literature around the topic from a holistic perspective, for example social, psychological and cultural aspects of a person's well-being.

Twelve participants were interviewed four times, over a 1-year period. The authors used theoretical sampling to guide the researcher as data were collected. It helped facilitate the development of theory as it emerged, not once data collection was complete. Initial participants were selected based on 'subject area', as is recommended in theoretical sampling. Each had undergone a surgical procedure to remove a tumour in their bowel or rectum and had not received prescribed chemotherapy or radiotherapy. The authors initially asked patient participants to describe their experiences to date.

Data analysis of the interviews was carried out according to the steps described by Strauss and Corbin (1998). The authors began by coding each line of each patient participant transcript. Similar codes were then grouped together to form subcategories and within these subcategories categories were identified. The authors then grouped together the categories to form theory related to patient participant experiences of recovery following surgical intervention for colorectal cancer. The process of data collection continued until each category was saturated and no new data emerged.

Patient participants described their recovery in three phases identified from three categories; disrupting the self, repairing the self and restoring the self. The authors also noted how the process was linear in that all participants went through the stages, for example, phase one began at prediagnosis and ended at the conclusion of surgery; phase two commonly lasted

between 3 and 6 months and phase three, from 6 months onwards, was related to a person's fluctuating level of wellness and illness. Notably, these three categories were underpinned by various subcategories, which were generated from initial codes. For example, the second category Beech *et al* (2012) identified, 'disrupting the self', was made up of the three subcategories; body repair, autonomy and re-establishing personal identity (figure 1).

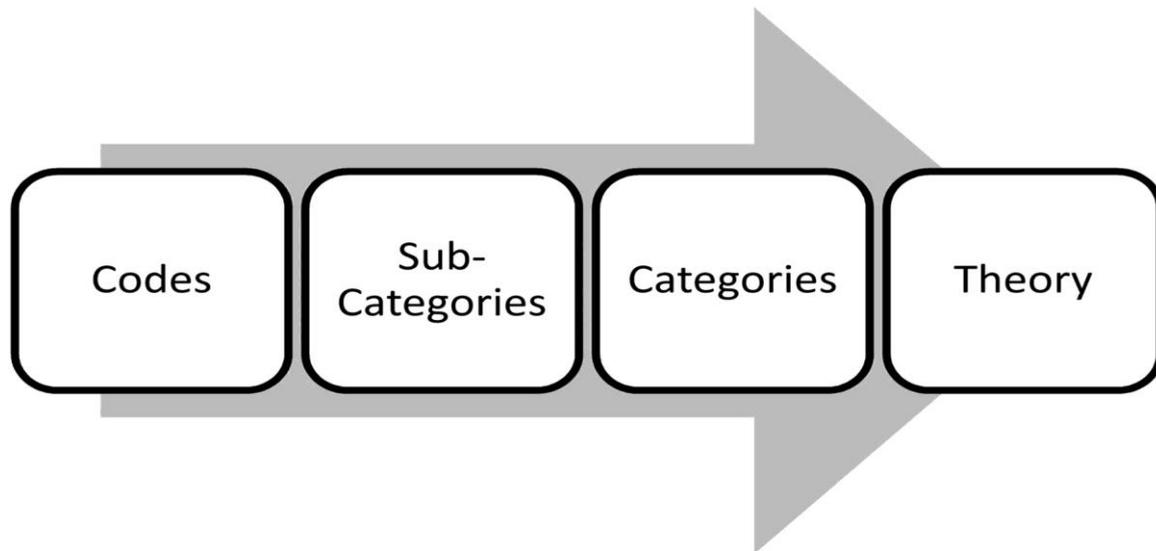


Figure 1

Grounded theory data analysis.

Importantly, the authors encapsulated the three categories to present a pertinent theory related to patient participant experiences of recovery following surgical intervention for colorectal cancer. They found that recovery is more than physical repair. It is a process of restoring a sense of wellness demonstrated through an awareness and enjoyment of the physical, emotional, social and spiritual aspects of life, in other words, holistic health.

Summary

By using GT and adhering to this as a research method, a theory will be produced that is grounded in your data.

It is a research method which uses strict procedures for data analysis and will enable you to search for and conceptualise the hidden social and collective patterns and constructions in your area of interest.

4. Narrative Inquiry Research

Narrative inquiry is the process of gathering information for the purpose of research through storytelling. The researcher then writes a narrative of the experience. Connelly and Clandinin (1990) note that, "Humans are storytelling organisms who, individually and collectively, lead storied lives. Thus, the study of narrative is the study of the ways humans experience the world." In other words, people's lives consist of stories.

Field notes, interviews, journals, letters, autobiographies, and orally told stories are all methods of narrative inquiry. For example, a researcher might do a study on the way in which fourth grade girls define their social roles in school. A researcher might look at such things as

notes and journal entries, and might also interview the girls and spend time observing them. After this, the researcher would then construct her own narrative of the study, using such conventions as scene and plot. As Connelly and Clandinin also note, “Research is a collaborative document, a mutually constructed story out of the lives of both researcher and participant.”

Narrative inquiry is appropriate to many social science fields. The entire field of study is often used in disciplines such as literary theory, history, anthropology, drama, art, film, theology, philosophy, psychology, linguistics, education, politics, nutrition, medicine, and even aspects of evolutionary biological science.

Lesson Nine: Tools of Research (Data Collection Methods)

▲ Questionnaires

Questionnaires are a good way to obtain information from a large number of people and/or people who may not have the time to attend an interview or take part in experiments. They enable people to take their time, think about it and come back to the questionnaire later. Participants can state their views or feelings privately without worrying about the possible reaction of the researcher. Unfortunately, some people may still be inclined to try to give socially acceptable answers. People should be encouraged to answer the questions as honestly as possible so as to avoid the researchers drawing false conclusions from their study.

Questionnaires typically contain multiple choice questions, attitude scales, closed questions and open-ended questions. The drawback for researchers is that they usually have a fairly low response rate and people do not always answer all the questions and/or do not answer them correctly. Questionnaires can be administered in a number of different ways (e.g. sent by post or as email attachments, posted on Internet sites, handed out personally or administered to captive audience (such as people attending conferences). Researchers may even decide to administer the questionnaire in person which has the advantage of including people who have difficulties reading and writing. In this case, the participant may feel that s/he is taking part in an interview rather than completing a questionnaire as the researcher will be noting down the responses on his/her behalf.

▲ Interviews

Interviews are usually carried out in person i.e. face-to-face but can also be administered by telephone or using more advance computer technology such as Skype. Sometimes they are held in the interviewee's home, sometimes at a more neutral place. It is important for interviewees to decide whether they are comfortable about inviting the researcher into their home and whether they have a room or area where they can speak freely without disturbing other members of the household.

The interviewer (which is not necessarily the researcher) could adopt a formal or informal approach, either letting the interviewee speak freely about a particular issue or asking specific pre-determined questions. This will have been decided in advance and depend on the approach used by the researchers. A semi-structured approach would enable the interviewee to speak relatively freely, at the same time allowing the researcher to ensure that certain issues were covered.

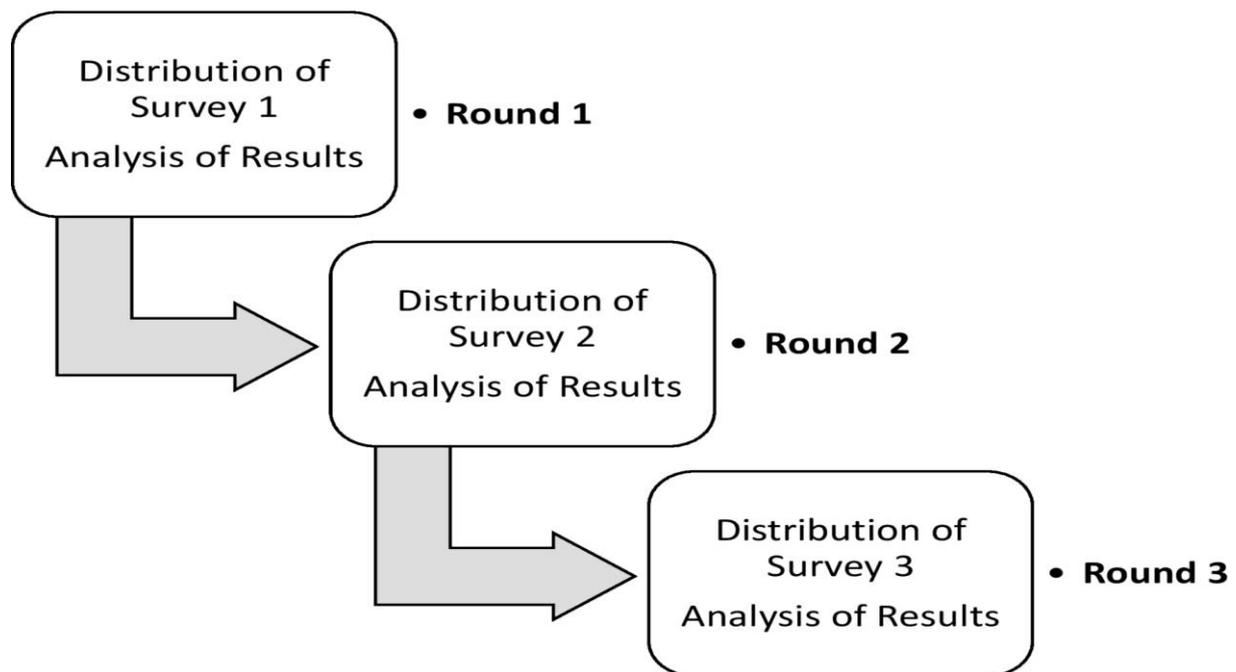
When conducting the interview, the researcher might have a check list or a form to record answers. This might even take the form of a questionnaire. Taking notes can interfere with the flow of the conversation, particularly in less structured interviews. Also, it is difficult to pay attention to the non-verbal aspects of communication and to remember everything that was said and the way it was said. Consequently, it can be helpful for the researchers to have some kind of additional record of the interview such as an audio or video recording. They should of course obtain permission before recording an interview.

▲ Studies Using the Delphi Method

The **Delphi** method was developed in the United States in the 1950s and 1960s in the military domain. It has been considered particularly useful in helping researchers determine the range of opinions which exist on a particular subject, in investigating issues of policy or clinical relevance and in trying to come to a consensus on controversial issues. The objectives can be roughly divided into those which aim to measure diversity and those which aim to reach consensus.

Different ways to employ this method have been devised but they tend to share common features, namely a series of “rounds” in which the participants (known as “panellists”) generate ideas or identify salient issues, comment on a questionnaire (constructed on the basis of the results from the first round) and re-evaluate their original responses. After each round, a facilitator provides an anonymous summary of the forecasts/opinions made by the experts and of their reasons.

There is no limit to the number of panellists involved but between 10 and 50 might be considered manageable. The panellists are chosen on the basis of their expertise which could take many forms (e.g. academic, professional or practical knowledge, personal experience of having a condition, being a service user etc.)



Lesson Ten: Time Horizons



1. Longitudinal Study Design

Longitudinal research is a type of correlational research that involves looking at variables over an extended period of time. This type of study can take place over a period of weeks, months, or even years. In some cases, longitudinal studies can last several decades.

1.1. How Longitudinal Research Works

So why would researchers want to conduct studies that take a very long time to complete? One reason is that a longitudinal study can be used to discover relationships between variables that are not related to various background variables. This observational research technique involves studying the same group of individuals over an extended period.

Data is first collected at the outset of the study, and may then be repeatedly gathered throughout the length of the study. Doing this also allows researchers to observe how variable may change over time.

For example, imagine that a group of researchers is interested in studying how exercise during middle age might impact cognitive health as people age. The researchers hypothesize that people who are more physically fit in their 40s and 50s will be less likely to experience cognitive declines in their 70s and 80s.

The researchers obtain a group of participants who are in their mid-40s to early 50s. They collect data related to how physically fit the participants are, how often they work out, and how well they do on cognitive performance tests. Periodically over the course of the study, the researchers collect the same data from the participants to track activity levels and mental performance.

A few key things to remember about longitudinal studies:

- They are observational in nature
- They are a type of correlational research
- Longitudinal research is often contrasted with cross-sectional research
- Longitudinal research involves collecting data over an extended period, often years or even decades
- Cross-sectional research involves collecting data at a single point in time

1.2. Types of Longitudinal Research

There are three major types of longitudinal studies:

- **Panel Study:** Involves sampling a cross-section of individuals.

- **Cohort Study:** Involves selecting a group based on a specific event such as birth, geographic location or historical experience.
- **Retrospective Study:** Involves looking to the past by looking at historical information such as medical records.

1.3.The Benefits

So, what are some of the reasons why a scientist chooses to conduct longitudinal research over other methods? For many types of research, longitudinal studies provide unique insight that might not be possible any other way.

The benefit of this type of research is that it allows researchers to look at changes over time. Because of this, longitudinal methods are particularly useful when studying development and lifespan issues. Researchers can look at how certain things may change at different points in life and explore some of the reasons why these developmental shifts take place.

An example of how this research can be used includes longitudinal studies that look at how identical twins reared together versus those reared apart differ on a variety of variables. Researchers track these participants from childhood into adulthood to look at how growing up in a different environment influences things such as personality and achievement.

Since the participants share these same genetics, it is assumed that any differences are due to environmental factors. Researchers can then look at what the participants have in common versus where they differ to see which characteristics are more strongly influenced by either genetics or experience.

Because longitudinal studies take place over a period of years (or even decades), they can be very useful when looking at changes in development over time. Researchers can utilise this kind of research to establish a sequence of events when looking at the aging process.

1.4.The Drawbacks

As with other types of psychology research, longitudinal studies have both their strengths and weaknesses. There are some important advantages to conducting longitudinal research, but there are also a number of drawbacks that need to be considered.

1.5.Longitudinal Studies Can Be Expensive

Longitudinal studies require enormous amounts of time and are often quite expensive. Because of this, these studies often have only a small group of subjects, which makes it difficult to apply the results to a larger population. Another problem is that participants sometimes drop out of the study, shrinking the sample size and decreasing the amount of data collected.

1.6.Participants Tend to Drop Out Over Time

This tendency for some participants to be more likely to drop out of a study is known as selective attrition. In our example above, participants might drop out for a number of reasons. Some might move away from the area while others simply lose the motivation to participate. Others might become housebound due to illness or age-related difficulties, and some participants will pass away before the study is concluded.

In some cases, this can lead to an attrition bias and influence the results of the longitudinal study. If the final group no longer reflects the original representative sample, this attrition can also threaten the validity of the experiment. Validity refers to whether or not a test or experiment accurately measures what it claims to measure. If the final group of participants is not a representative sample, it is difficult to generalise the results to the rest of the population.

1.7.The World’s Longest-Running Longitudinal Study

The world's longest-running longitudinal study is the Genetic Studies of Genius, which is today referred to as the Terman Study of the Gifted. The study was originally started in 1921 by psychologist Lewis Terman to investigate how highly intelligent children developed into adulthood.

The study is still going on today, although the original sample has understandably grown much smaller. The study originally had over 1,000 participants, but that number had dwindled to just 200 by 2003. Some of the participants included scientist Ancel Keys and educational psychologist Lee Chronback. Researchers plan to continue the study until the last participant either drops out or dies.

2. Cross-sectional

A cross-sectional study is a type of observational research that analyses data of variables collected at one given point in time across a sample population or a pre-defined subset. This study type is also known as cross-sectional analysis, transverse study, or prevalence study. Although cross-sectional research does not involve conducting experiments, it is often used to understand outcomes in the physical and social sciences, as well as many business industries.

Some examples about cross-sectional study are given here. Then, the types of cross-sectional research that a researcher might perform are explained. After that, a closer look is taken at the benefits that make this research useful for the work the researcher may do.

2.1.Defining Characteristics of Cross-sectional Studies

Some of the key attributes of a cross-sectional study are:

- The cross-sectional study is conducted with the same **set of variables** over a set period of time.
- Similar research may look at the same variable of interest, but each study observes a new set of subjects.
- Cross-sectional research assesses subjects during a single instance with a defined start and stopping point, unlike longitudinal studies, where variables can change during extensive research.
- Cross-sectional studies provide the researcher with the flexibility to look at one independent variable as the focus of the cross-sectional study and one or more dependent variables.

If you want a fitting metaphor for a cross-sectional study, think of a snapshot of a group of people at one event, say a family reunion. The people in that extended family are used to determine what is happening in real-time, at the moment. All of the people have at least one variable in common – being related – and multiple variables that they do not share. From that starting point, you could make all kinds of observations and analyses. Hence, this research type “takes the pulse” of population data at any given point in time.

You can also use this type of research to map prevailing variables that exist at a particular point. For example, cross-sectional data on past drinking habits and a current diagnosis of liver failure.

2.2.Cross-sectional Study Examples

The data collected in a cross-sectional study involves subjects or participants who are similar in all variables – except the one which is under study. This variable remains constant

throughout the cross-sectional study. This is unlike a **longitudinal study**, where variables can change throughout the research. Consider these examples for more clarity:

- **Retail:** In retail, cross-sectional research can be conducted on men and women in a specific age range to reveal similarities and differences in spending trends related to gender.
- **Business:** In business, a cross-sectional study can be conducted to understand how people of different socio-economic status from one geographic segment respond to one change in an offering.
- **Healthcare:** Scientists in healthcare may use cross-sectional research to understand how children ages 2-12 across the United States are prone to calcium deficiency.
- **Education:** A cross-sectional study in education is particularly helpful in understanding how students who scored within a particular grade range in the same preliminary courses perform with a new curriculum.
- **Psychology:** The cross-sectional study definition in psychology is research that involves different groups of people who do not share the same variable of interest (like the variable you are focusing on), but who do share other relevant variables. These could include age range, gender identity, socio-economic status, and so on.

Cross-sectional research allows scholars and strategists to quickly collect actionable data that helps in decision-making and offering products or services.

2.3.Types of Cross-sectional Studies

When you conduct a cross-sectional research study, you will engage in one or both types of research: descriptive or analytical. Read their descriptions to see how they might apply to your work.

2.3.1. Descriptive Research

A cross-sectional study may be entirely descriptive. A descriptive cross-sectional study assesses how frequently, widely, or severely the variable of interest occurs throughout a specific demographic. Think of the retail example that was previously mentioned. In that cross-sectional study example, researchers make focused observations to identify spending trends. They might use those findings for developing products and services and marketing existing offerings. They are not necessarily looking at why these gendered trends occur in the first place.

2.3.2. Analytical Research

Analytical cross-sectional research investigates the association between two related or unrelated parameters. This methodology is not entirely fool proof, though, because the presence of outside variables and outcomes are simultaneous, and their studies are, too. For example, to validate whether coal miners could develop bronchitis looks only at the variables in a mine. What it does not account for is that a predisposition to bronchitis could be hereditary or this health condition could be present in the coal workers before their employment in the mine. Yes, other medical research has shown that coal mining is detrimental to lungs, but you do not want those assumptions to bias your current study.

In a real-life cross-sectional study, researchers usually use both descriptive and analytical research methods.

2.4.More Cross-sectional Study Examples

Now that you have a better understanding of what cross-sectional research is and the methods you can use to perform your own studies, let's take a look at two examples in more detail:

2.4.1. Cross-sectional study example 1: Gender and phone sales

Phone companies rely on advanced and innovative features to drive sales. Research by a phone manufacturer throughout the target **demographic market** validates the expected adoption rate and potential sales of the phone. In a cross-sectional study, men and women across regions and age ranges are enrolled for this research. If the study results show that Asian women would not buy the phone because it is bulky, the mobile phone company can tweak the design before its launch or develop and market a smaller phone to appeal to a more inclusive group of women.

2.4.2. Cross-sectional study example 2: Men and cancer

Another example of a cross-sectional study would be a medical study looking at the prevalence of cancer amongst a defined population. The researcher can evaluate people of different ages, ethnicities, geographical locations, and social backgrounds. If a significant number of men from a particular age group are more prone to have the disease, the researcher can conduct further studies to understand the reasons behind it – like a longitudinal study, which would study the same participants over time.

2.5. Cross-sectional Studies Advantages and Disadvantages

Are you curious about whether cross-sectional research is the right approach for your next study? Surveys are an efficient and revealing way to gather data. Check out some of the key advantages and disadvantages of conducting **online research** using a cross-sectional study and see if it is a good fit for your needs.

2.5.1. Advantages of Cross-sectional Studies

- Relatively quick to conduct.
- All variables are collected at one time.
- Multiple outcomes can be researched at once.
- Prevalence for all factors can be measured.
- Suitable for descriptive analysis.
- Can be used as a springboard for further research.

2.5.2. Disadvantages of Cross-sectional Studies

- Cannot be used to get timeline-based research.
- Tough to find people that fall under the same variables.
- Associations can be difficult to interpret.
- Is open to bias.
- Does not help to determine cause.

If you are looking for an approach that studies subjects and variables over time, you might prefer a longitudinal study. Additionally, you could follow your cross-sectional research with a longitudinal study. It is easy to confuse the two research methods, so we have broken it down here:

3. Cross-sectional vs. Longitudinal Studies

Even though they are both **quantitative research methods**, there are a few differences when we compare and contrast cross-sectional studies vs. longitudinal studies.

In cross-sectional studies, the variables are collected at a particular point in time. Longitudinal studies span multiple sessions, and the variables could change.

Cross-sectional studies are preferred to find common points between variables. Still, longitudinal studies, due to their nature, are used to dissect the research from the cross-sectional study even further.

Longitudinal vs. cross-sectional studies

Comparators	Longitudinal	Cross-Sectional
Time / sequence	Several points in time – <i>'film strip'</i>	One point in time – <i>'snap shot'</i>
Sampling	Same sample	Different sample
Level of analysis	Change at the individual / hh level	Snapshot of a given point in time
Case examples	APRA tracker study	
	APRA WS1 two-wave panel study	APRA WS1 first wave panel study

Lesson Eleven: Formulating a Hypothesis

Introduction

Hypothesis is usually considered as the principal instrument in research. The derivation of a suitable hypothesis goes hand in hand with the selection of a research problem. A hypothesis, as a tentative hunch, explains the situation under observation so as to design the study to prove or disprove it. What a researcher is looking for is a working or positive hypothesis. It is very difficult, laborious and time consuming to make adequate discriminations in the complex interplay of facts without hypothesis. It gives definite point and direction to the study, prevents blind search and indiscriminate gathering of data and helps to delimit the field of inquiry.

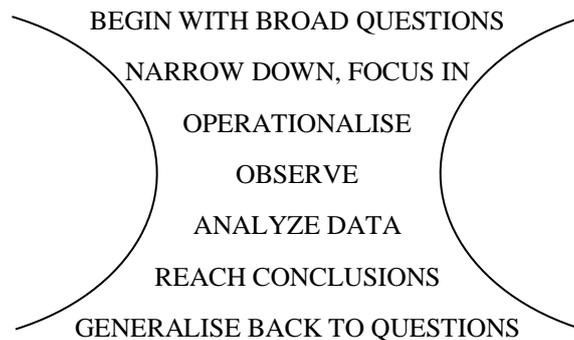
1. Processes Involved before Formulating a Hypothesis

The research structure helps us create research that is: **Quantifiable Verifiable Replicable Defensible.**

Corollaries among the model, common sense & paper format

Model	Common Sense	Paper Format
Research Question	Why	Intro
Develop a Theory	Your Answer	Intro
Identify Variables (if applicable)	How	Method
Identify Hypotheses	Expectations	Method
Test the Hypotheses	Collect/Analyse Data	Results
Evaluate the Result	What it Means	Conclusion
Critical Review	What it Does not Mean	Conclusion

Most research projects share the same general structure, which could be represented in the shape of an **hourglass**.



Some of the methods that are included for research formulation are:

- + Where does the problem origination or discovery begin?
 - ⊙ Previous Experience
 - ⊙ Triggered Interest
 - ⊙ Potential problem fields
- + Criteria of problems and problem statement
- + Goals & Planning
- + Search, Explore & Gather the Evidence
- + Generate creative and logical alternative solutions

Making the educated guess-the hypothesis!

2. Formulation of Hypothesis

The word hypothesis (plural is hypotheses) is derived from the Greek word – ‘hypotithenai’ meaning ‘to put under’ or ‘to suppose’ for a hypothesis to be put forward as a scientific hypothesis, the scientific method requires that one can test it .

Etymologically, the word hypothesis consists of two words –Hypo+Thesis. ‘Hypo’ (less than) which means tentative or subject to the verification. ‘Thesis’ means statement about solution of the problem. The construction –Hypo+Thesis means less than or less certain than a thesis. Thus, the literal meaning of the term hypothesis is a tentative statement about the solution of the problem. Hypothesis offers a solution of the problem that is to be verified empirically and based on some rationale/It is the presumptive statement of a proposition or a reasonable guess, based upon the available evidence, which the researcher seeks to prove through his study.

Again, ‘hypo’ means the composition of two or more variables which are to be verified and ‘thesis’ means position of these variables in the specific frame of reference.

3. Definitions of Hypothesis

In general, A hypothesis is a hunch, assumption, suspicion, assertion or an idea about a phenomenon, relationship or situation, the reality or truth of which you do not know. In most studies, the hypothesis is based upon either previous studies or one own or someone else’s observations.

“Any supposition which we make in order to endeavour to deduce conclusions in accordance with facts which are known to be real under the idea that if the conclusions to which the hypothesis leads are known truths, the hypothesis itself either must be or at least likely to be true.”

J.S. Mill

“A hypothesis is a tentative generalization the validity of which remains to be tested. In its most elementary stage, the hypothesis may be any hunch, guess, imaginative idea which becomes basis for further investigation.”

Lundberg

“It is a shrewd guess or inference that is formulated and provisionally adopted to explain observed facts or conditions and to guide in further investigation.”

John W. Best

“A hypothesis is a statement temporarily accepted as true in the light of what is, at the time, known about a phenomenon, and it is employed as a basis for action in the search for new, truth,

when the hypothesis is fully established, it may take the form of facts, principles and theories.”
Barr and Scates

“Hypothesis is an assumption whose testability is to be tested on the basis of the compatibility of its implications with empirical evidence and previous knowledge.” **Gorge J. Mouly**

“Hypotheses are single tentative guesses, good hunches –assumed for use in devising theory or planning experiments intended to be given a direct experimental test when possible”. (Eric Rogers, 1966).

“A hypothesis is a conjectural statement of the relation between two or more variables” (Kerlinger, 1956).

“Hypothesis is a formal statement that presents the expected relationship between an independent and dependent variable” (Creswell, 1994).

“A hypothesis can be defined as a tentative explanation of the research problem, a possible outcome of the research, or an educated guess about the research outcome” (Sarantakos, 1993: 1991).

“A hypothesis is a statement or explanation that is suggested by knowledge or observation but has not, yet, been proved or disproved” (Macleod Clark J and Hockey L 1981).

A hypothesis is, therefore, a shrewd and intelligent guess, a supposition, inference, hunch, provisional statement or tentative generalization as to the existence of some fact, condition or relationship relative to some phenomenon which serves to explain already known facts in a given area of research and to guide the search for new truth on the basis of empirical evidence. The hypothesis is put to test for its tenability and for determining its validity.

4. Nature of Hypothesis

The hypothesis is a clear statement of what is intended to be investigated. It should be specified before research is conducted and openly stated in reporting the results. This allows to:

- ⊙ Identify the research objectives.
 - ⊙ Identify the key abstract concepts involved in the research.
 - ⊙ Identify its relationship to both the problem statement and the literature review.
- ❖ A problem cannot be scientifically solved unless it is reduced to hypothesis form.
- ❖ It is a powerful tool of advancement of knowledge, consistent with existing knowledge and conducive to further enquiry.
 - ❖ It can be tested –verifiable or falsifiable.
 - ❖ Hypotheses are not moral or ethical questions.
 - ❖ It is neither too specific nor too general.
 - ❖ It is a prediction of consequences.
 - ❖ It is considered valuable even if proven false.

The nature of the hypothesis may be summarised in the following:

(i) Conceptual: Some kind of conceptual elements in the framework are involved in a hypothesis.

(ii) Verbal statement in a declarative form: It is a verbal expression of ideas and concepts. It is not merely mental idea but in the verbal form, the idea is ready enough for empirical verification.

(iii) It represents the tentative relationship between two or more variables.

(iv) Forward or future oriented: A hypothesis is future-oriented. It relates to the future verification not the past facts and information.

(v) Pivot of a scientific research: All research activities are designed for verification of hypothesis.

5. Functions of Hypothesis

H.H. Mc Ashan has mentioned the following functions of hypothesis;

- It is a temporary solution of a problem concerning with some truth which enables an investigator to start his research works through telling him what data to collect and what not to collect, therefore providing focus to the study.
- It offers a basis in establishing the specifics what to study for and may provide possible solutions to the problem.
- It may lead to formulate another hypothesis.
- A preliminary hypothesis may take the shape of final hypothesis.
- Each hypothesis provides the investigator with definite statement which may be objectively tested and accepted or rejected and leads for interpreting results and drawing conclusions that is related to original purpose; in other words, the construction of a hypothesis enhances objectivity in a study.
- It delimits field of the investigation.
- It sensitizes the researcher so that he should work selectively, and have very realistic approach to the problem.
- It offers the simple means for collecting evidences for verification.

6. Characteristics of a Hypothesis

◆ A hypothesis should be simple, specific and clear:

Ambiguity in the construction of a hypothesis will only make the verification of your hypothesis almost impossible. To be able to develop a good hypothesis you must be familiar with the subject area. The more insight you have into a problem, the easier it is to construct a hypothesis.

◆ A hypothesis should be capable of verification:

Methods and techniques must be available for data collection and analysis. There is no point in formulating a hypothesis if it cannot be verified. Nevertheless, this does not mean that you should not formulate a hypothesis that has no methods of verification. You might, be able to develop new techniques to verify it whilst doing your research.

◆ A hypothesis should be related to the existing body of knowledge:

It is important that your hypothesis emerges from the existing body of knowledge, and that it adds to it, as this is an important function of research. This can only be achieved if the hypothesis has its roots in the existing body of knowledge.

◆ A hypothesis should be operationalizable:

Meaning it can be expressed in terms that can be measured. If we cannot measure it, we cannot test it; which means we cannot draw any conclusions.

7. Importance of a Hypothesis

The importance of hypotheses is generally recognized more in the studies which aim to make predictions about some outcome. In experimental research, the researcher is interested in making predictions about the outcome of the experiment or what the results are expected to show and therefore the role of hypotheses is considered to be of utmost importance. In the historical or descriptive research, on the other hand, the researcher is investigating the history of a city or a nation, the life of a man, the happening of an event, or is seeking facts to determine the status quo of some situation and thus may not have a basis for making a prediction of results. A hypothesis, therefore, may not be required in such fact-finding studies. Hillway (1964) too is of the view that “when fact-finding alone is the aim of the study, a hypothesis may not be required.”

Most historical or descriptive studies, however, involve not only fact-finding but interpretation of facts to draw generalizations. If a researcher is tracing the history of an educational institution or making a study about the results of a coming assembly poll, the facts or data he gathers will prove useful only if he is able to draw generalizations from them. Whenever possible, a hypothesis is recommended for all major studies to explain observed facts, conditions or behaviour and to serve as a guide in the research process.

Hypotheses bring clarity and focus to a research problem, but are not essential for a study. The researcher can conduct a valid investigation without constructing a single formal hypothesis. However, within the context of a research study, the researcher can construct as many hypotheses as he considers to be appropriate. Some believe that the researcher should formulate a hypothesis to undertake an investigation; however, others think that hypotheses primarily arise from a set of ‘hunches’ that are tested through a study and one can conduct a perfectly valid study without having these hunches or speculations. Yet, in epidemiological studies, to narrow the field of investigation, it is important to formulate hypotheses. The main points that reflect the importance of formulating hypotheses are summarised in the following:

- a) **Investigator’s eyes: Carter V. Good** thinks that by guiding the investigator in further investigation hypothesis serves as the investigator’s eyes in seeking answers to tentatively adopted generalization.
- b) **Focuses research:** Without hypothesis, a research is unfocussed research and remains like a random empirical wandering. Hypothesis serves as necessary link between theory and the investigation.
- c) **Clear and specific goals:** A well thought out set of hypothesis places clear and specific goals before the research worker and provides him with a basis for selecting sample and research procedure to meet these goals.
- d) **Links together:** According to **Barr and Scates**, “It serves the important function of linking together related facts and information and organizing them into wholes.”
- e) **Prevents blind research:** In the words of P.V. Young, “The use of hypothesis prevents a blind search and indiscriminate gathering of masses of data which may later prove irrelevant to the problem under study.”

- f) **Guiding Light:** “A hypothesis serves as powerful beacon that lights the way for the research work.”
- g) It provides direction to research and prevent the review of irrelevant literature and the collection of useful or excess data.
- h) It sensitises the investigator certain aspects of situation which are irrelevant from the standpoint of problem at hand.
- i) It enables the investigator to understand with greater clarity his problem and its ramification.
- j) It is an indispensable research instrument, for it builds a bridge between the problem and the location of empirical evidence that may solve the problem.
- k) It provides the investigator with the most efficient instrument for exploring and explaining the unknown facts.
- l) It provides a frame work for drawing conclusion.
- m) It stimulates the investigator for further research.

8. Examples of a Hypothesis

An Example...

Imagine the following situation:

You are a nutritionist working in a zoo, and one of your responsibilities is to develop a menu plan for the group of monkeys. In order to get all the vitamins, they need, the monkeys have to be given fresh leaves as part of their diet. Choices you consider include leaves of the following species: (a) A (b) B (c) C (d) D and (e) E. You know that in the wild the monkeys eat mainly B leaves, but you suspect that this could be because they are safe whilst feeding in B trees, whereas eating any of the other species would make them vulnerable to predation. You design an experiment to find out which type of leaf the monkeys actually like best: You offer the monkeys all five types of leaves in equal quantities, and observe what they eat.

There are many different experimental hypotheses you could formulate for the monkey study. For example:

When offered all five types of leaves, the monkeys will preferentially feed on B leaves.

This statement satisfies both criteria for experimental hypotheses. It is a

- Prediction:** It predicts the anticipated outcome of the experiment.
- Testable:** Once you have collected and evaluated your data (i.e. observations of what the monkeys eat when all five types of leaves are offered), you know whether or not they ate more B leaves than the other types.

Incorrect Hypotheses would include:

When offered all five types of leaves, the monkeys will preferentially eat the type they like best.

This statement certainly sounds predictive, but it does not satisfy the second criterion: there is no way you can test whether it is true once you have the results of your study. Your data will show you **whether** the monkeys preferred one type of leaf, but not **why** they preferred it (i.e., they like it best). I would, in fact, regard the above statement as an assumption that is inherent in the design of this experiment, rather than as a hypothesis.

When offered all five types of leaves, the monkeys will preferentially eat B leaves because they can eat these safely in their natural habitat.

This statement is problematic because its second part ('because they can eat these safely in their natural habitat') also fails to satisfy the criterion of testability. You can tell whether the monkeys preferentially eat baobab leaves, but the results of this experiment cannot tell you why.

In their natural habitat, howler monkeys that feed in B trees are less vulnerable to predation than monkeys that feed on A, C, D, or E.

This is a perfectly good experimental hypothesis, but not for the experiment described in the question. You could use this hypothesis if you did a study in the wild looking at how many monkeys get killed by predators whilst feeding on the leaves of A, B etc. However, for the experimental feeding study in the zoo it is neither a prediction nor testable.

When offered all five types of leaves, which type will the monkeys eat preferentially?

This is a question, and questions fail to satisfy criterion #1: They are not predictive statements. Hence, a question is not a hypothesis.

9. Forms of Hypothesis

A research hypothesis can take either statistical form, declarative form, the null form, or the question form. According to **Bruce W. Tuckman** the following are the forms of hypothesis:

- **Declarative Statement**

A hypothesis developed as a declarative statement provides an anticipated relationship or difference between variables. Such a hypothesis developer has examined existing evidence which led him to believe that a difference may be anticipated as additional evidence. It is merely a declaration of the independent variables effect on the criterion variable. When the researcher makes a positive statement about the outcome of the study, the hypothesis takes the declarative form. **For example**, the hypothesis: **“The academic achievement of extroverts is significantly higher than that of the introverts,”** is stated in the declarative form. In such a statement of hypothesis, the researcher makes a prediction based on his theoretical formulations of what should happen if the explanations of the behaviour he has given in his theory are correct.

- **Directional Hypothesis**

A directional hypothesis, also labelled **one tailed directional hypothesis**, connotes an expected direction in the relationship or difference between variables. In other words, it **predicts** nature of the effect of the independent variable on the dependent variable as in **“adults will correctly recall more words than children.”** This type of hypothesis developer appears more certain of anticipated evidence. If seeking a tenable hypothesis is the general interest of the researcher, this hypothesis is less safe than the others because it reveals two possible conditions. First that the problem of seeking relationship between variables is so obvious that additional evidence is scarcely needed. Secondly, researcher has examined the variables very thoroughly and the available evidence supports the statement of a particular anticipated outcome.

predicts the

The hypotheses which stipulate the direction of the expected differences or relationships are terms as directional hypotheses. **For example**, the research hypothesis: **“There will be a positive relationship between individual’s attitude towards high caste Hindus and his socio-economic status,”** is a directional research hypothesis. This hypothesis stipulates that individuals with favourable attitude towards high caste Hindus will generally come from higher socio-economic Hindu families and therefore it does stipulate the direction of the relationship. Similarly, the hypothesis: **“Adolescent boys with high IQ will exhibit low anxiety than adolescent boys with low IQ”** is a directional research hypothesis because it stipulates the direction of the difference between groups.

- **Non –Directional Hypothesis or Null Hypothesis**

There are those who consider these two as one; yet, there are those who consider them as different **“Non-Directional is** A two-tailed non-directional hypothesis predicts that the independent variable will have an effect on the dependent variable, but the direction of the effect is not specified as in **“there will be a difference in how many numbers are correctly recalled by children and adults.”**

This hypothesis is stated in the null form which is an assertion that no relationship or no difference exists between or among the variables. Null hypothesis is a statistical hypothesis testable within the framework of probability theory. It is a non-directional form of hypothesis.

There is a trend to employ or develop null hypothesis in research in most of the disciplines. A null hypothesis tentatively states that on the basis of evidence tested there is no difference. If the null hypothesis is rejected, there is a difference but we do not know the alternative or the differences. In this the researcher has not to anticipate or give the rational for the declaration or directional form. It does not make researcher biased or prejudiced. He may be objective about the expected outcomes of the research or findings.

Actually, this is a statistical hypothesis which is self- explanatory. Null hypothesis means zero hypotheses. A researcher has not to do anything in developing it. While research hypothesis is second step in the process of reflective thinking.

A null hypothesis in an appropriate form is order to accommodate the object of inquiry for extracting this information. It does not necessarily reflect the expectations of the researcher so much as the utility of the null form as the best fitted to the logic of chance in statistical knowledge or science.

It is the no difference form, i.e. there is no difference or relationship between or among variables under certain conditions. Statistical tests of significance are used to accept and reject the null hypothesis. If it is rejected, the general hypothesis is accepted.

Non-directional hypothesis is known as null hypothesis because it ‘nullifies’ the positive argument of the findings or non-directional statement of the generalization. It is also termed as statistical or zero hypothesis because it denies the existence of any systematic principles apart from the effect of chance. It assumes that none or zero difference exists between the two population means or the treatments.

A research hypothesis which does not specify the direction of expected differences or relationships is a non-directional research hypothesis. For example, the hypotheses: “There will be difference in the adaptability of fathers and mothers towards rearing of their children” or “There is a difference in the anxiety level of adolescent girls of high IQ and low IQ” are non-directional research hypotheses. Although these hypotheses stipulate there will be a difference, the direction of the difference is not specified.

In the null form, the researcher makes a statement that no relationship exists. The hypothesis, “**There is no significant difference between the academic achievement of high school athletes and that of non-athletes,**” is an example of null hypothesis. Since null hypotheses can be tested statistically, they are often termed as statistical hypotheses. They are also called the testing hypotheses when declarative hypotheses are tested statistically by converting them into null form. It states that even where it seems to hold good it is due to main chance. It is for the researcher to reject the null hypothesis by showing that the outcome mentioned in the declarative hypothesis does occur and the quantum of it is such that it cannot be easily dismissed as having occurred by chance.

- **Statistical Hypothesis**

When it is time to test whether the data support or refute the research hypothesis, it needs to be translated into a statistical hypothesis. A statistical hypothesis is given in statistical terms. Technically, in the context of inferential statistics, it is a statement about one or more parameters that are measures of the populations under study. Statistical hypotheses often are given in quantitative terms, for example: “The *mean* reading achievement of the population of third-grade students taught by Method A equals the *mean* reading achievement of the population taught by Method B.” Therefore, we can say that **statistical hypotheses** are, concerned with populations under study. We use inferential statistics, to draw conclusions about population values even though we have access to only a sample of participants.

In order to use inferential statistics, we need to translate the research hypothesis into a testable form, which is called the null hypothesis. An alternative or declarative hypothesis indicates the situation corresponding to when the null hypothesis is not true. The stated hypothesis will differ depending on whether or not it is a directional research hypothesis.

- **Question form**

A hypothesis stated as a question represents the simplest level of empirical observation. It fails to fit most definitions of hypothesis. It frequently appears in the list. There are cases of simple investigation which can be adequately implemented by raising a question, rather than dichotomizing the hypothesis forms into acceptable / reject able categories.

- ★ **In the question form hypothesis**, a question is asked as to what the outcome will be instead of stating what outcome is expected. **Suppose a researcher is interested in knowing whether programmed instruction has any relationship to test anxiety of children.**
- ★ **The declarative form** of the hypothesis might be: “**Teaching children through the programmed instruction material will decrease their test anxiety**”.

- ★ **The null form** would be: “teaching children through programmed instruction material will have no effect on their test anxiety.” This statement shows that no relationship exists between programmed instruction and test anxiety.
- ★ **The question form** puts the statement in the form: “Will teaching children through programmed instruction decrease their test anxiety?”

10. Types of Hypotheses

Null Hypothesis

Designated by: H_0 or H_N

Pronounced as “H oh” or “H-null”

Alternative Hypothesis

Designated by: H_1 or H_A

The **null hypothesis** represents a theory that has been put forward, either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved.

- ❖ Has serious outcome if incorrect decision is made!

The **alternative hypothesis** is a statement of what a hypothesis test is set up to establish.

- ❖ Opposite of Null Hypothesis.
- ❖ Only researched if H_0 is rejected.
- ❖ Frequently “alternative” is actual desired conclusion of the researcher!

⊙ EXAMPLE

In a clinical trial of a new drug, the **null hypothesis** might be that the new drug is no better, on average, than the current drug.

We would write H_0 : **there is no difference between the two drugs on average.**

The **alternative hypothesis** might be that:

the new drug has a different effect, on average, compared to that of the current drug.

We would write H_1 : **the two drugs have different effects, on average.**

the new drug is better, on average, than the current drug.

We would write H_1 : **the new drug is better than the current drug, on average.**

We give special consideration to the null hypothesis...

- ✚ This is due to the fact that the null hypothesis relates to the statement being tested, whereas the alternative hypothesis relates to the statement to be accepted if / when the null is rejected.
- ✚ The final conclusion, once the test has been carried out, is always given in terms of the null hypothesis. We either 'reject H_0 in favour of H_1 ' or 'do not reject H_0 '; we never conclude 'reject H_1 ', or even 'accept H_1 '.
- ✚ If we conclude 'do not reject H_0 ', this does not necessarily mean that the null hypothesis is true, it only suggests that there is not sufficient evidence against H_0 in favour of H_1 ; rejecting the null hypothesis then, suggests that the alternative hypothesis may be true.

11. Formulation of Testable Hypothesis

A hypothesis is a tentative assumption drawn from knowledge and theory. It is used as a guide in the investigation of other facts and theory that are as yet unknown. Its formulation is one of the most difficult and most crucial steps in the entire scientific process. A poorly chosen or poorly worded hypothesis can prevent the following:

- (i) The obtaining of enough pertinent data,
- (ii) The drawing of conclusions and generalisations, and
- (iii) The application of certain statistical measures in the analysis of the result.

Hypothesis is the central core of study that directs the selection of the data to be gathered, the experimental design, the statistical analysis and the conclusions drawn from the study. A study may be devoted to the testing of one major hypothesis, a number of subsidiary hypothesis, or both major and subsidiary hypotheses. When several hypotheses are used, each should be stated separately in order to anticipate the type of analysis required and in order to definitely accept or reject each hypothesis on its own merit. Irrespective of number or type used each hypothesis should be testable and based upon a logical foundation.

Formulating a hypothesis is important to narrow a question down to one that can reasonably be studied in a research project. The formulation of the hypothesis basically varies with the kind of research project conducted. Qualitative or quantitative and can also be divided into deductive and inductive.

In **qualitative research**, the use of Research Questions as opposed to objectives or hypothesis, is more frequent. **Some of the characteristics that the qualitative** hypothetical question entails are:

- Use of words-what or how. Specify whether the study: discovers, seeks to understand, explores or describes the experiences.
- Use of non-directional wording in the question. These questions describe, rather than relate variables or compare groups.
- The questions are under continual review and reformulation-will evolve and change during study.
- The questions are usually open-ended, without reference to the literature or theory.
- Use of a single focus.

The rules of Qualitative research that **Kleining** offers are four rules for a scientific and qualitative process of approaching understanding to reality.

Rule 1 (refers to subject / researcher)

“Prior understandings of the phenomenon to be researched should be seen as provisional and should be transcended with [the discovery of] new information with which they are not consistent” (1982, p. 231).

Rule 2 (refers to the object of study)

“The object is provisional; it is only fully known after the successful completion of the process of discovery” (1982, p. 233).

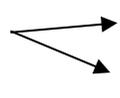
Rule 3 (refers to action in relation to the subject of research, hence to data collection)

“The object should be approached from "all" sides; rule of the maximum variation of perspective” (1982, p. 234).

Rule 4 (refers to the evaluation of information gathered, hence to data analysis)

“Analysis of the data for common elements” (1982, p. 237).

In contrary to survey projects where the use of research questions and objectives is more frequent, in **quantitative research (especially experiments), hypotheses are more frequent.**

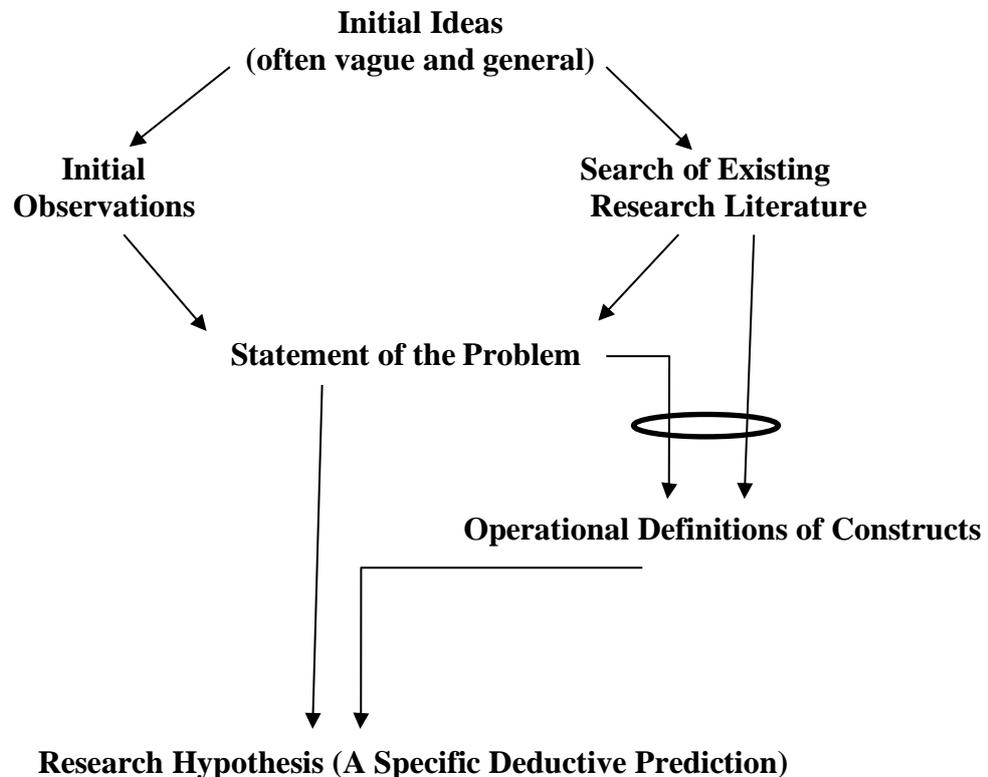
Quantitative approach (experiments) represents  **comparison between variables**
relationship between variables

The characteristics of an experimental hypothesis are as follows:

- ★ The testable proposition to be deduced from theory.
- ★ Independent and dependent variables to be separated and measured separately.
- ★ To be either writing-questions, or objectives or hypotheses, but not a combination.
- ★ Consider the alternative forms for writing and make a choice based on the audience for the research.

12. Generation of a Research Hypothesis

Problem statements become research hypotheses when constructs are operationalised.



Example:

Consider the example of a simple association between two variables, Y and X.

1. Y and X are associated (or, there is an association between Y and X).
2. Y is related to X (or, Y is dependent on X).
3. As X increases, Y decreases (or, increases in values of X appear to effect reduction in values of Y).
 - **The first hypothesis** provides a simple statement of association between Y and X. Nothing is indicated about the association that would allow the researcher to determine which variable, Y or X, would tend to cause the other variable to change in value.
 - **The second hypothesis** is also a simple statement of association between Y and X, but this time it may be inferred that values of Y are in some way contingent upon the condition of the X variable.
 - **The third hypothesis** is the most specific of the three. Not only does it say that Y and X are related and that Y is dependent on X for its value, but it also reveals something more about the nature of the association between the two variables.

13. Testing a Hypothesis

To test a hypothesis, the researcher needs to go through a process that comprises three phases:

- Constructing a hypothesis.
- Gathering appropriate evidence.
- Analysing evidence to draw conclusions as to its validity.

It is only after analysing the evidence that the can conclude whether a hypothesis is true or false. When concluding about a hypothesis, conventionally, the researcher specifically makes a statement about whether ‘the hypothesis is true’ or ‘the hypothesis is false’. It is very important to formulate the hypothesis clearly, precisely and in a form that is testable. In arriving at a conclusion about the validity of your hypothesis, the way the researcher collects evidence is of high importance and it is therefore essential that the study design, sample, data collection method(s), data analysis and conclusions, and communication of the conclusions are valid, appropriate and free from any bias.

The degree of challenge to the hypothesis will depend on the type of problem and its importance. It can range from just seeking “a good enough” solution to a much more rigorous challenge. The term “challenging” may include:

- ◆ Verification
- ◆ Justification
- ◆ Refutability
- ◆ Validity
- ◆ Rectification
- ◆ Repeatability
- ◆ Falsification

There are two possibilities

1. Nothing Happened the Null Hypothesis - H_0
2. Something Happened the Alternative Hypothesis - H_1

Hypothesis testing is a four-step procedure:

- ⊙ Stating the hypothesis (Null or Alternative).
- ⊙ Setting the criteria for a decision.
- ⊙ Collecting data.
- ⊙ Evaluate the Null hypothesis.

14. Errors in Testing a Hypothesis

As already mentioned, a hypothesis is an assumption that may be either correct or incorrect. It is possible to arrive at an incorrect conclusion about a hypothesis for various reasons.

Incorrect conclusions about the validity of a hypothesis may be drawn if:

- The study design selected is faulty.
- The sampling procedure adopted is faulty.
- The method of data collection is inaccurate.
- The analysis is wrong.
- The statistical procedures applied are inappropriate.
- The conclusions drawn are incorrect.

In drawing conclusions about a hypothesis, two types of error can occur: *Rejection* of a null hypothesis when it is true. This is known as a **Type I error**. *Acceptance* of a null hypothesis when it is false. This is known as a **Type II error**.

Two types of mistakes are possible while testing the hypothesis **Type I** and **Type II**.

Small example:

		Your actual health	
		sick	well
What doc says	sick	You are sick Doc confirms it	Get scared for nothing!
		RIGHT	WRONG-Type I error
	well	Doc missed your real illness!	You're really not sick!
		WRONG-Type II error	RIGHT

-Type I Error

- A **type I error** occurs when the null hypothesis (H_0) is wrongly rejected.

For example, A type I error would occur if we concluded that the two drugs produced different effects when in fact there was no difference between them.

-Type II Error

- **A type II error** occurs when the null hypothesis H_0 , is not rejected when it is in fact false.

For example: A type II error would occur if it were concluded that the two drugs produced the same effect, that is, there is no difference between the two drugs on average, when in fact they produced different ones.

To generalise:

		Decision	
		Reject H_0	Don't reject H_0
Truth	H_0	Type I Error	Right Decision
	H_1	Right Decision	Type II error

- ❖ **Type I error is often considered to be more serious, and therefore more important to avoid, than a type II error.**

15. Fundamental Basis of Hypothesis

The researcher deals with reality on two levels:

1 .The Operational Level

On the operational level researcher must define events in observable terms in order to operate with the reality necessary to do researches .

2 .The Conceptual Level

On the conceptual level the researcher must define events in terms of underlying communality with other events. Defining at a conceptual level, the researcher can abstract from single specific to general instance and begin to understand how phenomena operate and variables interrelate. The formulation of a hypothesis very frequently requires going from an operational or concrete level to the conceptual or abstract level. This movement to the conceptual level enables the result to be generalized beyond the specific conditions of a particular study and thus to be of wider applicability .

Research requires the ability to move from the operational to the conceptual level and vice-versa. This ability is required not only in constructing experiments but in applying their findings as well. The process of making conceptual contrasts between operational programme is called conceptualisation or dimensionalisation .

16. Difficulties in the Formulation of Useful Hypothesis

Moving from the operational to the conceptual level and vice –versa is a critical ingredient of the research to demonstration process. The following are the difficulties in the

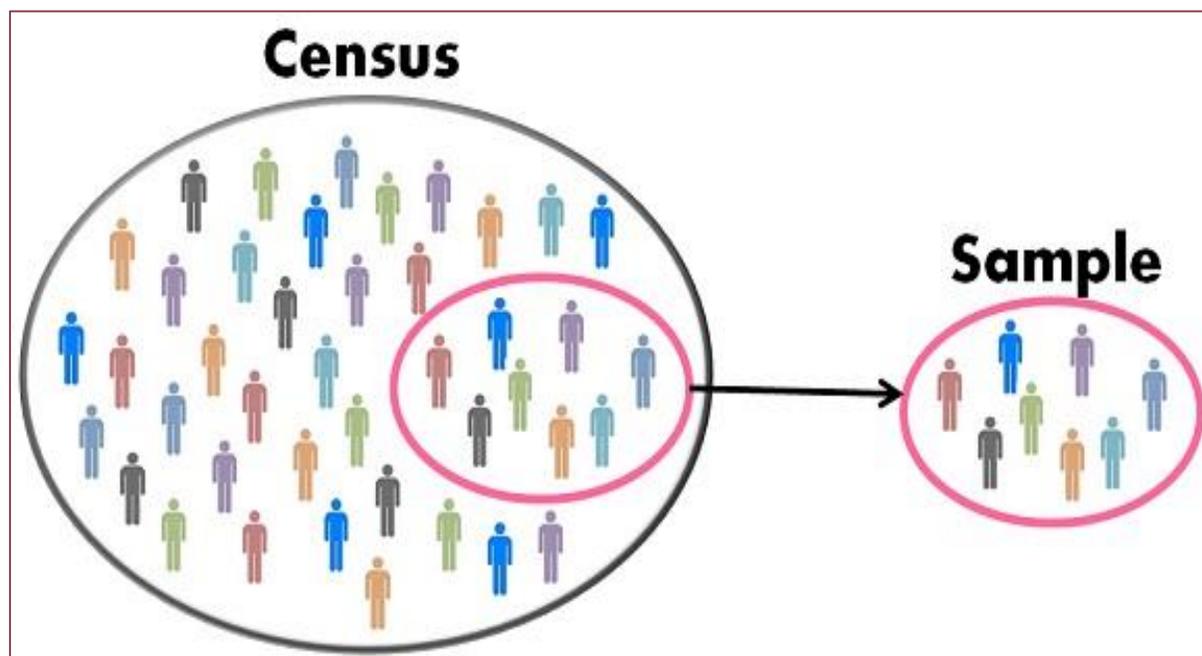
formulation of hypothesis :

- 1 .Absence of knowledge of a clear theoretical framework .
- 2 .Lack of ability to make use of the theoretical framework logically .
3. Lack of acquaintance with available research technique resulting in failure to be able to phrase the hypothesis properly.

Lesson Twelve: Population and Sampling

A survey may be conducted by either of two methods:

1. Census Method or Parametric method, and
2. Sampling method or Non-parametric method.



1. Census Method

It deals with the investigation of the entire population. Here the data are collected for each and every unit of the universe. This method provides more accurate and exact information as no unit is left out.

2. Sampling Method

Here a small group is selected as representative of the whole universe. It works with the objective to obtain accurate and reliable information about the universe with minimum of cost, time and energy and to set out the limits of accuracy of such estimates. It makes exhaustive and intensive study possible with much less time, money and material. Its more popular in research work.

3. Population

Population or universe means, the entire mass of observations, which is the parent group from which a sample is to be formed. The term population or universe conveys a different meaning than a traditional one. In census survey, the count of individuals (men, women and children) is known as population.

But, in **Research Methodology population** means characteristics of a specific group. For example, secondary school teachers of, who have some specific features like teaching experience, teaching attitudes etc.

Sampling means selecting a given number of subjects from a defined population as representative of that population.

One type of population distinguished by educational researchers is called the **target population**. By target population distinguished by educational researchers is called the target population. By target population, also called universe, we mean all the members of a real or hypothetical set of people, events or objects to which we wish to generalize the results of our research.

The first step in sampling is to define the target population.

Research work is guided by inductive thinking. The researcher proceeds from specificity to generality. The sample observation is the specific situation, which is applied to the population, it is the general situation.

The measures of a sample are known as statistics and measures of a population are termed as parameter. Mean, S.D., coefficient of Correlation of sample observation known as Statistics and Mean, S.D., coefficient of correlation of population are known as parameters. Generally, parameters are estimated on the basis of sample statistics.

Sampling is indispensable technique in behavioural research and not so common in physical sciences. It is fundamental to all statistical methodology of behavioural and social research. It makes research findings economical and accurate. Sampling means selection of individuals from the population in such a way that every individual has equal chance to be taken into the sample.

The term sample should be reserved for a set of units or portion of an aggregate of material which has been selected in the belief that it will be representative of the whole aggregate. By Frank Yates "Sample is set of units of an aggregate."

4. Assumptions of Sampling

- **Homogeneity Amidst Complexity**

Social phenomenon is very complex in nature and every unit appears to be different from another. But at the same time, they also possess similarities in many respects. It is, therefore, assumed that there is the possibility of such representative types in the whole population that makes sampling possible.

- **Possibility of Representative Selection**

Sampling has its origin in the mathematical theory of probability and law of statistical regularity. The law of statistical regularity lays down that a group of objects chosen at random from a large group tend to possess the characteristics of that large group (universe) by

L. R. Conner.

- **Absolute Accuracy not Essential But relative or Significant**

Absolute accuracy not essential but relative or significant accuracy i.e. needed in case of large-scale observations. Because it is practically impossible to achieve because of errors in measurement, collection of data, its analysis, interpretation.

5. Definition

“A statistical sample is a miniature picture or cross –section of the entire group or aggregate from which the sample is taken.”

P. Y. Young

A sample is a small proportion of a population selected for observation and analysis. It is a collection consisting of a part or sub-set of the objects or individuals of population which is selected for the express purpose of representing the population.

By observing the characteristics of the sample, one can make certain inferences about characteristics of the population from which it is drawn.

“Sampling is the process of selecting a sample from the population. For this purpose, the population is divided into a number of parts called sampling units.”

Sampling designs means the joint procedure of selection and estimation. Sampling is a part of the strategy of research.

Sampling should be such that the error of estimation is minimum.

Good and Hatt, “A sample as the name implies, is a smaller representation of a larger whole.”

W. G. Cochran, “In every branch of science we lack the resources, to study more than a fragment of the phenomenon that might advance our knowledge.” i.e. fragment is sample and phenomenon is population. The sample observations are applied to the phenomenon i.e. generalisation.

David S. Fox, “In the social sciences, it is not possible to collect data from every respondent relevant to our study but only from some fractional part of the respondents. The process of selecting the fractional part is called sampling.”

6. Need of Sampling

- ❖ Economy of time.
- ❖ Economy of money.
- ❖ True detailed knowledge.
- ❖ Utility in experimental study.
- ❖ It has reliability because it is based on probability theory.

7. Advantages of Sampling

- It has a greater adaptability.
- It is an economical technique.

- It has high speed for generalization.
- According to **W.G. Cochran**, “It has greater precision and accuracy in the observation”.
- This technique has great accuracy.
- It has a greater speed in conducting a research work.
- It has a greater scope in the field of research.
- It reduces the cost of observation or data collection.

8. Disadvantages or Limitation of Sampling

- ◆ Scope of biasness. (Less accuracy)
- ◆ Problem of representative sample-Difficulty in selecting a truly representative sample.
- ◆ Need of eligible researchers.
- ◆ Instability of sample subjects or changeability of units i.e. in heterogeneous population.
- ◆ There are certain situations where sampling is possible.

9. Essentials of an Ideal Sample

- **Homogeneity:** The units included in sample must be as likeness with other units.
- **Adequacy:** A sample having 10% of the whole data is adequate.
- **Independence:** Every unit should be free to be included in the sample.
- **Representativeness:** An ideal sample must be such that it represents the whole data adequately.

The number of units included in a sample should be sufficient to enable derivation of conclusions applicable to the whole data.

- **Economical** in terms of time and money.
- **High level of reliability.**

10. Characteristics of a Good Sample

- ✚ A good sample is the true representative of the population corresponding to its properties.
- ✚ The population is known as aggregate of certain properties and sample is called sub-aggregate of the universe.
- ✚ A good sample is free from bias; the sample does not permit prejudices, the learning and pre-conception, imaginations of the investigator to influence its choice.

- ✚ A good sample is an objective one; it refers objectivity in selecting procedure or absence of subjective elements from the situation.
- ✚ A good sample maintains accuracy. It yields an accurate estimates or statistics and does not involve errors.
- ✚ A good sample is comprehensive in nature. This feature of a closely linked with true-representativeness. Comprehensiveness is a quality of a sample which is controlled by specific purpose of the investigation. A sample may be comprehensive in traits but may not be a good representative of the population.
- ✚ A good sample has the practicability for research

11. Types of Sampling Designs/Methods of Sampling

Sampling



A Probability Sampling B Non-Probability Sampling

- | | |
|--|---------------------------------------|
| A 1 Random Sampling | B-1 Incidental or Accidental Sampling |
| A-2 Systematic Sampling | B-2 Judgment Sampling |
| A-3 Stratified Sampling | B- 3 Purposive Sampling |
| A-4 Multistage Sampling | B-4 Quota Sampling |
| A-5 Purposive Sampling | |
| A-6 Cluster Sampling | |
| A-7 Multiple Sampling or Double Sampling | |

Difference between Probability and Non-Probability Sampling

	Probability Sampling 	Non-Probability Sampling 
1	It is a method of sampling which gives the probability that a sample is representative of population.	In the absence of any idea of probability the method of sampling is known as non-probability sampling.
2	Probability sampling is generally used in fundamental research in which the purpose is to generalise the results.	It is generally used in action researches in which one studies a class without any generalisation purpose.
3	It refers from the sample as well as the population.	There is no idea of population.
4	Every individual of the population has equal probability to be taken into the sample.	There is no probability of selecting any individual.
5	It may be representative of the population.	It has free distribution.
6	Its observations (data) are used for the inferential purpose.	The observations are not used for generalisation purpose.
7	Inferential or parametric statistics are used.	Non-inferential or non-parametric statistics are used.
8	There is a risk of drawing conclusion.	There is no risk for drawing conclusions.
9	It is based on Law of probability sampling i.e. Law of Statistical Regularity and Law of Inertia of the Large Sample.	It is not based on law of probability sampling.

- **Probability Sampling**

G.C. Halmstadter, “A probability sample is one that has been used selected in such a way that every element chosen has a known probability of being included.”

Probability sampling is of different types:

- **Simple Random Sampling**

It is one in which each element of the population has an equal and independent chance of being included in the sample i.e. a sample selected by randomization method is known as simple random sample and this technique is simple randomizing.

Randomisation is done by using the following techniques:

- (a) Tossing a coin (b) Throwing a dice
- (b) Lottery method (d) Blind folded method
- (c) Tippett’s table method



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a. Merits of Randomisation

- It requires the minimum knowledge of population.
- It is free from subjectivity and free from personal error.
- It provides appropriate data for one's purpose.
- The observations of the sample can be used for inferential purpose.

b. Demerits of Randomisation

- It cannot ensure the representativeness of a sample.
- It does not use the knowledge about the population.
- Its inferential accuracy depends upon the size of the sample.

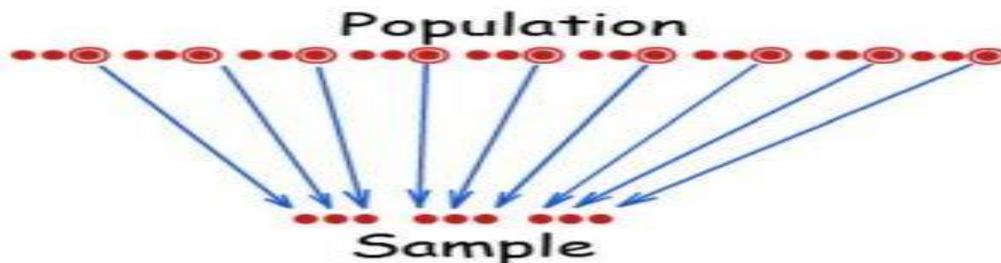
• Systematic Sampling

Systematic sampling is an improvement over the simple random sampling. This method requires the complete information about the population. There should be a list of information of all the individuals of the population in any systematic way.

Now we decide the size of the sample:

Let the size of sample is = n and population size is = N

Now we select each N/n individual from the list and thus we have the desired size of sample which is known as systematic sample. Thus, for this technique of sampling population should be arranged in any systematic way.



a. Merits

- ✓ This is a simple method of selecting a sample.
- ✓ It reduces the field cost.
- ✓ Inferential statistics may be used.

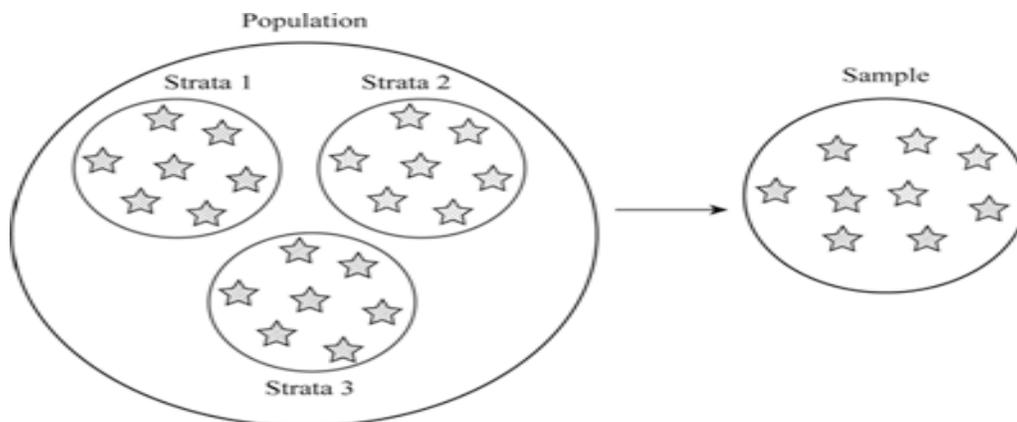
- ✓ Sample may be comprehensive and representative of population.
- ✓ Observations of the sample may be used for drawing conclusions and generalisations.

Demerits

- ✓ This is not free from error, since there is subjectivity due to different ways of systematic list by different individuals.
- ✓ Knowledge of population is essential.
- ✓ Information of each individual is essential.

- **Stratified Sampling**

It is an improvement over the earlier methods. When we employ this technique, the researcher divides his population into strata on the basis of some characteristics and from each of these smaller homogenous groups (strata) draws at random a predetermined number of units. Researcher should choose that characteristic as criterion which seems to be more relevant in his research work.



Stratified sampling may be of three types:

(a) Disproportionate

Means that the size of the sample in each unit is not proportionate to the size of the unit but depends upon considerations involving personal judgement and convenience. This method of sampling is more effective for comparing strata which have different error possibilities. It is less efficient for determining population characteristics.

(b) Proportionate

It refers to the selection from each sampling unit of a sample that is proportionate to the size of the unit. Advantages of this procedure includes representativeness with respect to variables used as the basis of classifying categories and increased chances of being able to make comparisons between strata. Lack of information on proportion of the population in each category and faulty classification may be listed as disadvantages of this method.

(c) Optimum allocation

Stratified sampling is representative as well as comprehensive than other stratified samples. It refers to selecting units from each stratum. Each stratum should be in proportion to the corresponding stratum the population. Thus, sample obtained is known as optimum allocation sample.

a. Merits

- It is a good representative of the population.
- It is an improvement over the earlier technique of sampling.
- It is an objective method of sampling.
- Observations can be used for inferential purpose.

b. Demerits

- Serious disadvantage of this method is that it is difficult for the researcher to decide the relevant criterion for stratification.
- Only one criterion can be used for stratification, but generally it seems more than one criterion relevant for stratification.
- It is costly and time-consuming method.
- Selected samples may be representative with reference to the used criterion but not for the other.
- There is a risk of generalization.

• Multiple or Double Repetitive Sampling

Generally, this is not a new method but only a new application of the samplings. This is most frequently used for establishing the reliability of a sample. When employing a mailed questionnaire, double sampling is sometimes used to obtain a more representative sample. This is done because some randomly selected subjects who are sent questionnaires may not return them.

Obviously, the missing data will bias the result of the study, if the people who fail to reply the query differ in some fundamental way from the others in respect to the phenomenon being studied.

To eliminate this bias, a selected sample may be drawn at random from the non-respondents and the people interviewed to obtain the desired information. Thus, this technique is also known as repeated or multiple sampling.

This double sampling technique enables one to check on the reliability of the information obtained from first sample. Thus, double sampling, where in one sample is analysed and information obtained is used to draw the next sample to examine the problem further.



a. Merits

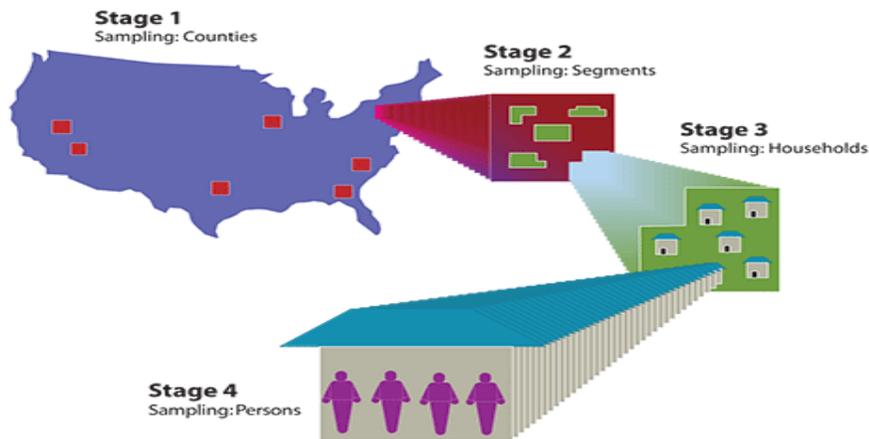
- Thus, sampling procedure leads to the inferences of free determine precision based on a number of observations.
- This technique of sampling reduces the error.
- This method maintains the procedure of the finding evaluate the reliability of the sample.

b. Demerits

- This technique of sampling cannot be used for a large sample . It is applicable only for small sample.
- This technique is time consuming and costly.
- Its planning and administration is more complicated.
- **Multi Stage Sampling**

This sample is more comprehensive and representative of the population. In this type of sampling primary sample units are inclusive groups and secondary units are sub-groups within these ultimate units to be selected which belong to one and only one group.

Stages of a population are usually available within a group or population, whenever stratification is done by the researcher. The individuals are selected from different stages for constituting the multi stage sampling.



a. Merits

- ★ It is a good representative of the population.
- ★ Multistage sampling is an improvement over the earlier methods.
- ★ It is an objective procedure of sampling.
- ★ The observations from multi stage sample may be used for inferential purpose.

b. Demerits

- ★ It is a difficult and complex method of sampling.
- ★ It involves errors when we consider the primary stages.
- ★ It is again a subjective technique of sampling.

- **Cluster Sampling**

To select the intact group as a whole is known as a cluster sampling. In cluster sampling the sample units contain groups of elements (cluster) instead of individual members or items in the population. Rather than listing all elementary school children in a given city and randomly selecting 15 % of these students for the sample, a researcher lists all of the elementary schools in the city, selects at random 15 % of these clusters of units, and uses all of the children in the selected schools as the sample.



a. Merits

- ✂ It may be a good representative of the population.
- ✂ It is an easy method.
- ✂ It is an economical method.
- ✂ It is practicable and highly applicable in education.
- ✂ Observations can be used for inferential purpose.

b. Demerits

- ✂ Cluster sampling is not free from errors.

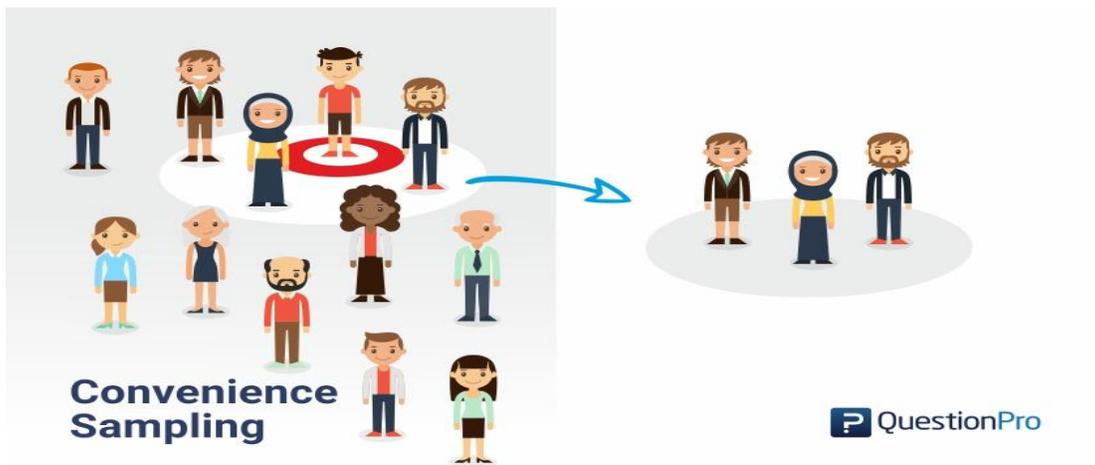
✦ It is not comprehensive.

- **Non-Probability Sampling Method**

Samples which are selected through non-random methods are called non probability samples. Depending upon the technique used it may be;

- **Incidental or Accidental Sampling**

The term incidental or accidental applied to those samples that are taken because they are most frequently available, i.e., this refers to the groups which are used as samples of a population because they are readily available or because the researcher is unable to employ more acceptable sampling methods.



a. Merits

- ▲ It is very easy method of sampling.
- ▲ It is frequently used method in behavioural sciences.
- ▲ It reduces the time, money and energy i.e. it is an economical method.

b. Demerits

- ▲ It is not representative of the population.
- ▲ It is not free from errors.
- ▲ Parametric statistics cannot be used.

- **Judgment Sampling**

This involves the selection of a group from the population on the basis of available information assuming as if they are representative of the entire population. Here group may also be selected on the basis of intuition or on the basis of the criterion deemed to be self-evident. Generally, investigator should take the judgment sample so this sampling is highly risky.

a. Merits

- ✗ Knowledge of investigator can be best used in this technique of sampling.

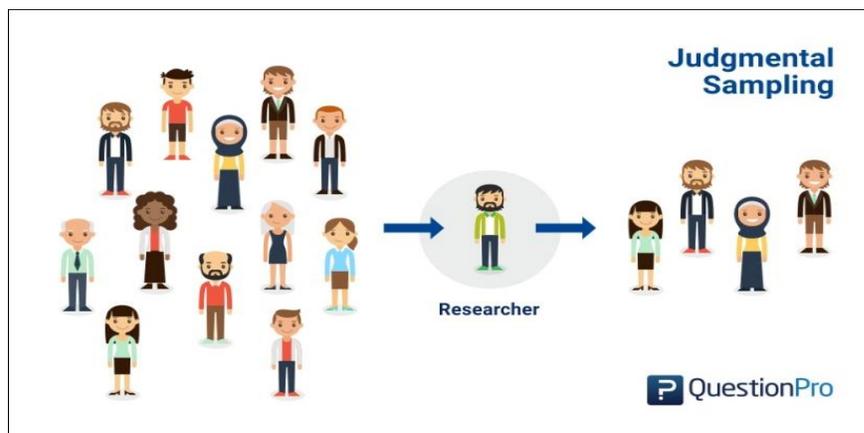
- ✗ This method of sampling is economical.

b. Demerits

- ✗ This technique is objective.
- ✗ It is not free from errors.
- ✗ It includes uncontrolled variation.
- ✗ Inferential statistics cannot be used for the observation of this sampling, so generalisation is not possible.

- **Purposive Sampling**

The purposive sampling is selected by some arbitrary method because it is known to be representative of the total population, or it is known that it will produce well matched groups. The idea is to pick out the sample in relation to criterion which are considered important for the particular study. This method is appropriate when the study places special emphasis upon the control of certain specific variables.



a. Merits

- ✧ Use the best available knowledge concerning the sample subjects.
- ✧ Better control of significant variables.
- ✧ Sample groups data can be easily matched.
- ✧ Homogeneity of subjects used in the sample.

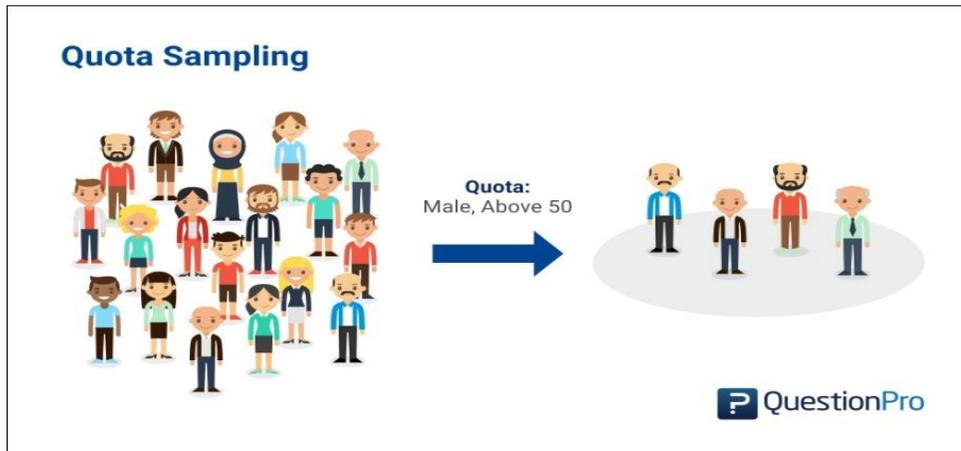
b. Demerits

- ✧ Reliability of the criterion is questionable.
- ✧ Knowledge of population is essential.
- ✧ Errors in classifying sampling subjects.
- ✧ Inability to utilize the inferential parametric statistics.

- ✳ Inability to make generalization concerning total population.

- **Quota Sampling**

This combines both judgment sampling and probability sampling: on the basis of judgment or assumption or the previous knowledge, the proportion of population falling into each category is decided. Thereafter a quota of cases to be drawn is fixed and the observer is allowed to sample as he likes. Quota sampling is very arbitrary and likely to figure in municipal surveys.



a. Merits

- ⊙ It is an improvement over the judgment sampling.
- ⊙ It is an easy sampling technique.
- ⊙ It is not frequently used in social surveys.

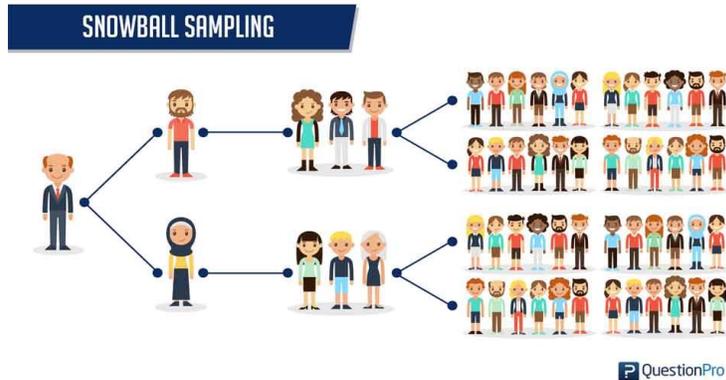
b. Demerits

- ⊙ It is not a representative sample.
- ⊙ It is not free from errors.
- ⊙ It has the influence of regional, geographical and social factors.

- **Snowball Sampling**

The term 'snow ball sampling' has been used to describe a sampling procedure in which the sample goes on becoming bigger and bigger as the observation or study proceeds. The term snowball stems from the analogy of a snowball sample which would allow computation of estimates of sampling error and use of statistical test of significance.

For example, an opinion survey is to be conducted on smokers of a particular brand of cigarette. At the first stage, we may pick up a few people who are known to us or can be identified to be the smokers of that brand. At the time of interviewing them, we may obtain the names of other persons known to the first stage subjects. Thus, the subjects go on serving an informant for the identification of more subjects and the sample goes on increasing.



a. Merit

- ✧ Snowball sampling which is generally considered to be non-probabilistic can be converted into probabilistic by selecting subjects randomly within each stage.

b. Demerit

- ✧ Sampling errors may creep in.

- **Purposive or Expert Choice Sampling**

Samples are sometimes expressly chosen because, in the light of available information, these mirror some larger group with reference to one or more given characteristics. The controls in such samples are usually identified as representative areas (city, country, state, district), representative characteristics of individuals (age, sex, marital status, socio-economic status, race) or types of groups (administrator, counsellors, teachers etc.).



These controls may be further sub-divided by specified categories within classes such as amount of training, years of experience or attitudes towards a specific phenomenon. Up-to this stage, these controls are somewhat similar to those used in satisfaction. Purposive sampling differs from stratified random sampling in that the actual selection of the units to be included in the sample in each group is done purposively rather than by random method.

Lesson Thirteen: Writing a Dissertation

General

The more detail you are able to include at the proposal stage, the more you will see that the dissertation will 'write itself'.

1. Provisional Title

The title you propose should not be too long and should give the reader a clear and straightforward picture of what you want to say.

2. Introduction

Your introduction should sum up:

- The main research concerns.
- The theoretical and/or the empirical background, and
- Your research questions and hypothesis (es).

2.1. Rationale

Put down a brief statement of what you set yourself to investigate, and what pushed you to choose this area. Show why it is important to you.

2.2. Review of Literature

The literature reviewed should be strictly relevant to your research area. You may choose to begin with a rather wide focus and zero in on the precise question at issue.

2.3. Statement of the Research Questions and Hypothesis

These should be in both general and operational form, and hypothesis should be very clearly stated (the if form is much required). You may wish to accompany each result question hypothesis with a brief explanatory discussion.

3. Method

3.1. Materials

What materials do you intend to use? For which purpose? For teaching? For measurement? Reason(s) for the precise form selected. Which are your dependent variables? Which are your independent variables? Why?

3.2. Subjects

How many? What are the relevant characteristics? How are they selected? Variables controlled? Variables let free to vary?

3.3. Procedures

Description of what you think may happen when? What did you do to rule out the effect of unwanted variables?

3.4. Method and analysis

What are the proposed statistical measurements, and other analysis? What do you expect?

4. Conclusion

A brief summary of your findings. In this section, you draw general conclusions, for the practice of language teaching, the nature of the teaching process, etc.

5. Bibliography

Follow the format used in major journals. Remember, however, to be consistent throughout the paper.

On notes by Dr. K Khaldi, University of Algiers

How to Write

A dissertation is a piece of writing through which the writer communicates a specific (give the answer to a specific problem, idiosyncrasy) answer in a particular and comprehensive way to a reader. No readers want to read a boring (the topic itself) paper. They want to read a paper that is clear and well-articulated.

One of the most important elements in writing is to impress the reader from the beginning to the end. In effect, the introduction is a place of great effect and it should therefore be very inviting. Therefore, the best way for writing a fascinating paper is to write a very sound introduction by developing a great thesis statement. Being the spine for your entire paper, such an introduction becomes the glue that holds your paper together. The more complex, specific, and interesting it is, the better your paper will be. Consider the following step to breathe life into your entire dissertation (impress people by the language and give your words life, they should not be dead).

Primarily ask yourself the following two related questions. What precisely do I want to do? And How can I best do it? In trying to answer these questions, you will indulge into a cognitive and pleasurable enterprise that would lead you but to successful writing. Do not shirk it! (avoid things and laziness).

What Precisely do I want to do? (choose quickly/to be decisive)

You will discover that knowing what you want to do is 50% of the entire work. Being under the influence of liking all the topics, you will find that all the subjects are interesting. It is quite understandable that you feel overwhelmed by the number of choices you have to make. You just cannot remain hesitating or bored because you could not make up your mind, all the topics are interesting and for time constraints, you have to choose quickly!

How can I best do it? (you sign your name: impress)

No matter what you have chosen, you should try to get excited (very enthusiastic) about it. The more you are interested and excited, the better your paper will be. Even if on the face of it, your paper topic seems boring, this is a very good opportunity to get creative and think of a way to make it exciting. That's your [only your] challenge, and you can do it.

It is worth noting that developing a strong opinion about your topic will give you the necessary impetus (strong desire or force) to write a fascinating dissertation. Remember that writing a great thesis statement means you need to develop a strong opinion about your topic. You have to know how to spew (to be generous) strong opinions that attract readers.

The best way to form a strong opinion about your topic is to start reading through books, articles, abstracts, and even Internet. Jot down (make a quick note) any strong opinion that you come across which looks interesting to you. If you do not quote ad verbatim (as it is), paraphrase it and use nice expressions, hyphenate adjectives to spice your dissertation. Make sure to empower your writing with meaning carrying words, to-the-point [and thus exciting] adjectives that describe what you really think. Adjectives like trustworthy, undeniable (beyond doubt), indefatigable; heart-searching and many others are powerful because they portray a strong point of view about something or someone.

In Short

1. Know the area (be aware)
2. Read, read, read (books, current journals, pamphlets, articles, etc.)
3. Use reference management software! (e.g. Google) go to the source literature (don't expect textbooks and other secondary sources to be either accurate or complete; do not count on one).
4. Avoid embarrassing overlap (already done by other in another field).
5. Pay attention to methods, analyses, motivations, applications (contrastive study, etc.)
6. Tree-in; tree-out: look at paper citations, and who cited particular papers. Note how others interpreted (or how cited) papers you've already read; they may have a different interpretation). readings like a tree'
7. Don't get 'paper-locked' (give a particular or different thought to your topic). Don't get overwhelmed and biased by what has already been done. Once familiar with an area, what has and hasn't been done, start working on what you could do.
8. Look at proposals and documents generated by your predecessors (those who have worked before you). At this point, generate some initial ideas (to get a clear idea after reading). Be creative, and novel (new).

9. Your dissertation should be well written, organised, with a logical flow of ideas ‘no cut in the chapters, they should hold together’ (beware of the tsunami of ideas!). Be concise but also complete (short, avoid repetition). Use good grammar. It’s usually a good idea to have a colleague to read it before giving it to your adviser, especially if they have already submitted their first draft or successfully defended their proposal. Often little errors or small changes will be identified and corrected.

There should be a respect of tenses:

In the conclusion: the present perfect.

In cite: present.

In the introduction: the future.

10. When summarising existing literature, it is not enough just to describe what authors X, Y, and Z did. Results should be interpreted, in the context of the overall review and study objectives.
11. In particular, discuss contrasting evidence, possible sources for discrepancies (experimental design lack of controls, sensitivity of measures, etc.), and the importance of resolving the differences.
12. Avoid complex words and convoluted sentences constructions, where simpler ones will convey the information (like utilise vs. use; cognizant vs. aware; though personal style always has a role).
13. There is no advantage to be gained by making something obscure. The scientific value is not enhanced by complicated words and prose, and to someone that knows the field, you don’t sound any more knowledgeable.

(Source: Internet)

First presented by

M. Nussbaum, October 24, 2002

How to Write your Thesis

As compiled by Kim Kastens, Stephanie, Pfirman, Martin Stute, Bill Hahn, Dallas Abbott, and Chris Scholz (Source: Internet)

1. Thesis Structure	2. Crosscutting Issues	3. Editing Your Thesis
Title Page	What We Are Looking For	Copy Editing
Abstract	Planning Ahead for Your Thesis	Content Editing
Table of Contents	Writing for an Audience	Avoiding Ambiguity
List of figures	Skimming vs. Reading	Thesis Length
List of Tables	Order of Writing	Writing for an International Audience
Introduction	Figures and Tables	
Methods	Tying the Text to the Data	
Results	Giving Credit	
Discussion	Final Thesis	
Conclusions	Resources	
Recommendations	These steps should be seen and rechecked each time.	
Acknowledgements (comes first in Algeria)		
References		
Appendices		

Lesson Fourteen: Referencing Styles (American Psychological Association /Seventh Edition and Modern Linguistic Association/ Eighth Edition)

1. Referencing/Citation

Whenever you use other people's words, ideas, information, or images in your own work, you need to identify the source accurately to

- 1) give credit to the original creators of the work and
- 2) provide your reader with a reliable path to the original source.

2. Definition of Plagiarism

Plagiarism is a form of academic misconduct that occurs when a student uses the work of others but fails to accurately cite it. Inaccurate citations make it difficult or impossible for your reader to locate the original source. Missing citations give the impression that you are trying to take credit for the work of others. Plagiarism commonly results in a 0% on the assignment; To learn more about avoiding plagiarism, see the resources at www.mtroyal.ca/codeofstudentconduct.

3. The Purpose of Referencing/Documentation

- A. to identify (**cite**) other people's ideas and information used **within your essay or term paper**, and
- B. to indicate the sources of these citations in the **References list** at the end of your paper.

4. American Psychological Association (APA)

The APA reference style (named after the American Psychological Association) goes back to the late 1920s, when a group of scholars from the fields of Psychology, Anthropology and Business Management met in order to set up a system for giving references. Today, APA is used within the Social Sciences, as well as within other academic fields.

APA style was created by the American Psychological Association (APA). There are many different style guides (e.g., MLA, Chicago, SAA, Harvard), and each one is basically a set of rules for referencing and formatting documents. The *Publication Manual of the American Psychological Association* (6th ed.) is the main source of information for this handout, but we have also used the *APA Style Guide for Electronic References* (6th ed.) and the *APA Style Blog* (<https://blog.apastyle.org/>).

There have been six editions of the American Psychological association reference styles. A new edition (the seventh edition) was published in October, 2019.

1.1. Definition

APA is an author-date reference style, which means that in-text references are given within parentheses.

Here, we give basic information about APA referencing. For more detailed information, see the *Publication Manual of the American Psychological Association* (2009) or online APA. Note that APA provides good online resources, both for beginners and for more advanced APA users.

The American Psychological Association (APA) style is widely accepted in the social sciences and other fields, such as education, business, and nursing. The APA citation format requires parenthetical citations within the text rather than endnotes or footnotes. Citations in the text provide brief information, usually the name of the author and the date of publication, to lead the reader to the source of information in the reference list at the end of the paper.

5. What Does APA Referencing Look Like?

There are two parts:

1. In-text citations (within the body of your paper): Each in-text citation gives just enough information on a particular source to “point” the reader to the corresponding, more detailed entry on the reference list.

Educators and parents are becoming increasingly concerned about the addictive properties of social media. A recent study of secondary school students in the UK found that Instagram addiction was linked to declining mental health (Taprobane & Boucher, 2018, p. 139). Previous studies found a connection between compulsive Facebook and Twitter use and anxiety (Kahale, 2016; Park, 2019). In addition to mental health concerns, social media use has been . . .

2. The reference list (on a separate page at the end of your paper): This is the list of sources you used and cited in your paper.

References

Kahale, D. (2016). *The Facebook dilemma*. Toronto, Canada: University of Toronto Press.

Park, J. (2019, May 29). Tweets, fake news, and anxiety. *The New York Times*. Retrieved from

<https://www.nytimes.com/>

5.1.In-Text Citations

What Are the Three Elements of an In-Text Citation?

1. author's last name [APA p. 174]
2. year of publication [APA p. 185]
3. page number* [APA pp. 170-172]

*For quotations, a page number is required. For paraphrases, the page number is optional but recommended.

How Do I Format the Three Elements?

[APA pp. 92, 170-172]

You have 2 choices:

	Format 1	Format 2
	Put all 3 elements in parentheses at the end of the sentence. Use commas to separate the elements.	Use the author's name and year of publication in your sentence, and place the page number in parentheses at the end.
Paraphrase	One researcher emphasized the necessity of flexible thinking for coping with rapidly changing technology (Lee, 2007, p. 82). Place the period <i>after</i> the citation!	Lee (2007) emphasized that flexible thinking is vital for coping with rapidly changing technology (p. 82).
Short quotation (up to 39 words)	One researcher stated that "the ability to think critically is needed in this revolutionary age of technological change" (Lee, 2007, p. 82).	Lee (2007) stated, "The ability to think critically is needed in this revolutionary age of technological change" (p. 82).

NOTE: A quotation should not stand alone as its own sentence. You must incorporate quotations into your sentences (as in the examples above). In many disciplines, paraphrasing is preferable to quoting; check with your instructors for guidance on this.

What If the Source Has More Than One Author?

[APA p. 177]

	Format 1	Format 2
2 authors	---- (Smith & Jones, 2004, p. 93). use & between names	Smith and Jones (2004) found that----- (p. 93). use "and" between names
3-5 authors	The first time you cite the source in your paper: ---- (Simpson, Stahl, & Francis, 2004, p. 9). notice the comma	The first time you cite the source in your paper: Simpson, Stahl, and Francis (2004) argued that -----

		(p. 9). notice the comma
	<p>Every other time you cite that same source: ----- (Simpson et al., 2004, p. 18). notice the period and comma</p>	<p>Every other time you cite that same source: Simpson et al. (2004) argued that ----- (p. 18).</p>
6+ authors	----- (Kallai et al., 2011, p. 121).	Kallai et al. (2011) noted that----- (p. 121).

What If One of the Three Elements Is Missing? [APA pp. 171-172, 176-177]

Missing Element	What to Do	Format 1	Format 2
No page numbers, and the source has NO headings	Identify the paragraph where the information appears	----- (Enmax, 2017, para. 7).	According to figures reported by Enmax (2017), ----- (para. 7).
No page numbers, and the source has headings	Use the heading, and identify the paragraph <i>below the heading</i> where the information appears	----- (Lachs, 2019, Proposed Solution, para. 2). notice the capital letters NOTE: Long headings should be shortened to a few words. If you shorten a heading, use quotation marks around it. ----- (Lachs, 2019, “Ways,” para. 2).	Lachs (2019) suggested that ----- (Proposed Solution, para. 2). Lachs (2019) suggested that ---- (“Ways,” para. 2).
No author’s name	Use the title of the source	----- (“Plastic Bags,” 2019, para. 3). NOTE: Use only the first few words of the title when following Format 1.	The article “Plastic Bags in Green Bins OK in Ottawa as of Today” (2019) noted that ----- (para. 5). NOTE: Use quotation marks and capital letters for all major words.
No date	Use n.d.	----- (Liu, n.d., para. 3)	Liu (n.d.) emphasized----- (para. 3).

What If the Author Is an Organization, Not a Person?

[APA pp. 176-177]

	Format 1	Format 2
Organization without a commonly used abbreviation	----- (Calgary Meals on Wheels, n.d., para. 3).	Calgary Meals on Wheels (n.d.) provides ---- (para. 3).
Organization WITH a commonly used abbreviation	The first time you cite the source in your paper: ----- (World Health Organization [WHO], 2018, para. 4).	The first time you cite the source in your paper: World Health Organization (WHO, 2018) warned that ----- (para. 4).
	Every other time you cite that same source: ----- (WHO, 2018, para. 4).	Every other time you cite that same source: WHO (2018) warned that ----- (para. 4).

How Do I Cite a Source Found in Another Source? [APA p. 178]

Often an author cites someone else’s work. Wherever possible, it is best to track down the original source of the idea. If this is not possible, follow the format below, where Kamura is the source you read, and Patel is the original source. (Remember that the author of the source *you* read goes after the words “as cited in”).

Include **only** Kamura's article in your reference list.

Format 1	Format 2
Little empirical research on students' critical thinking exists (Patel, as cited in Kamura, 2018, p. 83). the source you read	A 2016 review by Patel found little empirical research on students' critical thinking (as cited in Kamura, 2018, p. 83). the source you read

- should be used sparingly.

If I Use the Same Source More Than Once in a Paragraph, Do I Have to Cite It Each Time?

[APA pp. 174-175] Yes! Citation must be dealt with sentence by sentence. Within a single paragraph, when several sentences all contain information from the same source, don't make the mistake of citing only the first or last sentence. *You* know which ideas came from the source, but the only way your reader can know is through citations. There is one shortcut, but it only applies if you are using Format 2 (see p. 2). After the first citation, you can omit the year in subsequent sentences as long as it is clear you are referring to the same source (e.g., by repeating the author name or using cues like "the researchers" or "their study").

When students begin to incorporate the use of specific strategies, self-monitoring, and self-reflection into their academic endeavours, they are more successful in reaching their goals. In their examination of students' acquisition of learning strategies, **Simpson, Stahl, and Francis (2004)** stressed that students will use a strategy if they understand how, why, and when to use it (p. 3). **The researchers** argued that students typically need multiple exposures to a new strategy before they decide to adopt it for themselves (p. 3). **They** also proposed that using the specific strategy taught in a course is often less important than using the metacognitive processes of "selecting, summarizing, organizing, elaborating, monitoring, self-testing, reflecting and evaluating" in (Simpson et al., 2004, p. 4). ← If you switch to Format 1, use a complete

Remember that this only works *within a paragraph*.

Are In-Text Citations Always Placed at the End of a Sentence?

No. Sometimes an in-text citation needs to be placed earlier in a sentence. In the following example, the student has paraphrased source information in the first part of the sentence but has continued the sentence with their own analysis:

Although persistence was identified as the most influential factor (Twoyoungmen, 2010, p. 96), the study lacked sufficient

information from the
student's own

2. Find the corresponding section in the Reference Examples pages of this guide (pp. 7-12). For example, if your source is a journal article, go to section C on page 8.
3. Find the example that most closely fits your source. You might need to combine two examples to get the best fit. For example, if your journal article has a DOI but has two authors, you will need to combine C2 and C3.
4. Follow the following formatting details in each example closely (e.g., italics, punctuation, capitalization).

Reference Examples

A. Books

REMEMBER: For book titles, capitalize only the first word, the first word after a colon, and proper nouns.

A1 Book, 1 author, no edition [APA p. 202]	Johnston, M. (2009). <i>Perspective, persistence, and learning</i> . Thousand Oaks, CA: Sage. NOTE: For U.S. publications, use the city followed by the two-letter abbreviation for the state.
A2 Book, 2 authors, edition stated [APA pp. 203, 205]	Touhy, T. A., & Jett, K. (2018). <i>Ebersole and Hess' gerontological nursing and healthy aging</i> (5th ed.). St. Louis, MI: Elsevier.
A3 Book with 3 to 7 authors, not from U.S. [APA p. 184]	Downing, L., Carter, J. C., & McManus, T. (2007). <i>Students in our midst</i> . Toronto, Canada: Doubleday. NOTE: For non-U.S. publications, use the city followed by the country.
A4 E-book of print book retrieved from library subscription database [APA p. 203; <i>Electronic Guide</i> p. 17]	O'Brien-Pallas, L., Hiroz, J., Cook, A., & Mildon, B. (2005). <i>Nurse-physician relationships: Solutions and recommendations for change</i> . Retrieved from http://deslibris.ca NOTE: APA accepts the URL with or without a hyperlink. Check with each professor what you should do.
A5 Translation: English translation of a non-English book [APA pp. 178-179, 199, 204-205]	Mancusa, S., & Viola, A. (2015). <i>Brilliant green: The surprising history and science of plant intelligence</i> (J. Benham, Trans.). Washington, DC: Island Press.

B. Entries and Chapters in Edited Books (includes encyclopedia and dictionary entries)

B1 Chapter with known author in an edited book [APA p. 204]	Smith, F. M., & Jones, W. (2004). The college student. In C. Wood & M. Meyer (Eds.), <i>Cross-cultural education</i> (pp. 75-105). London, Canada: MacMillan.
---	---

<p>B2 Chapter with known author in an edited book with a large editorial board [APA pp. 182, 184, 204]</p>	<p>Kushner, K. E., & Jackson, M. (2019). Health and wellness. In B. J. Astle et al. (Eds.), <i>Canadian fundamentals of nursing</i> (6th ed., pp. 1-17). Milton, Canada: Elsevier Canada.</p> <p>NOTE: Normally all editors would be listed. As this book has a large editorial board, we only included the first editor listed on the title page (B. J. Astle) followed by et al. If the chapter has both an original and a Canadian author listed, include both in your reference.</p>
<p>B3 Chapter with known author from an edited book, included in a course pack [APA p. 204]</p>	<p>Jefferson, T. (2008). Masculinities and crimes. In D. E. King, & J. A. Winterdyk (Eds.), <i>Diversity issues and the criminal justice system: Course readings for Applied Justice Studies (AJUS) 2231</i> (pp. 325-347). Calgary, Canada: Mount Royal University. (Reprinted from <i>The Oxford handbook of criminology</i> (2nd ed.), pp. 535-557, by M. Maguire, R. Morgan, & R. Reiner, Eds., 1997, Oxford, England: Oxford University Press).</p> <p>NOTE: In-text citations should include the original publication date as well as the course pack publication date, e.g., (Jefferson, 1997/2008, p. 326). Use the course pack page numbering if available. If the course pack does not have its own page numbers, use the original page numbers of the chapter.</p>
<p>B4 Entry/definition in print encyclopedia, author known [APA p. 202]</p>	<p>Davidson, T. (2002). Common cold. In J. L. Longe (Ed.), <i>The Gale encyclopedia of medicine</i> (2nd ed., Vol. 2, pp. 869-872). Detroit, MI: Gale Group.</p>
<p>B5 Entry/definition in a web encyclopedia, author unknown [APA p. 202]</p>	<p>Cell division. (2008). In E. Martin & R. Hine (Eds.), <i>Dictionary of biology</i>. Retrieved from http://www.oxfordreference.com</p>

NOTE: These entries should begin with the author(s) of the chapter/story/poem, but remember to give credit to the editor(s) as well.

C. Articles: Journals and Periodicals (newspapers, magazines, newsletters)

NOTE: For the name of the journal (not the article, but the *journal* itself), capitalize all major words.

<p>C1 Scholarly journal article, 1 author, print version, no DOI available [APA p. 199]</p>	<p>Lee, K. (2007). Online collaborative case study learning. <i>Journal of College Reading and Learning</i>, 37(2), 82-100.</p>
<p>C2 Scholarly journal article, 1 author, from a library database, with DOI [APA p. 198; <i>Electronic Guide</i> p. 12; <i>APA Style Blog</i> March 1, 2017]</p>	<p>Perrey, S. (2017). Do we perform better when we increase red blood cells? <i>The Lancet Haematology</i>, 17, 2352-3026. https://doi.org/10.1016/S2352-3026(17)30123-0</p> <p>NOTE: A digital object identifier (DOI) should be included at the end of the reference. If there is a DOI, keep the volume number, but omit the article's issue number. APA will accept the following formats for the DOI: https://doi.org/10.1016/S2352-3026(17)30123-0 OR http://dx.doi.org/10.1016/S2352-3026(17)30123-0 doi:10.1016/S2352-3026(17)30123-0 APA recommends that you pick one format to use consistently in your paper.</p>

<p>C3 Scholarly article, 2 authors, found through web search, not a library database [APA pp. 191-192, 199]</p>	<p>Brown, C., & Austin, D. (2009). Commentary: Fatty acids, breastfeeding and autism spectrum disorder. <i>E-journal of Applied Psychology</i>, 5(1), 49-52.</p> <p>Retrieved from https://researchbank.swinburne.edu.au/</p> <p>NOTE: Provide the URL of the journal home page.</p>
<p>C4 Scholarly journal article, up to 7 authors, from a library database, no DOI [APA p. 199]</p>	<p>Simpson, M. L., Stahl, N. A., & Francis, M. A. (2004). Reading and learning strategies: Recommendations for the 21st century. <i>Journal of Developmental Education</i>, 28(2), 2-15.</p> <p>NOTE: Italicize the journal name and volume number but not the issue number. Some articles may not have an issue number; in that case, omit it.</p>
<p>C5 Scholarly journal article, more than 7 authors, with DOI: list first 6, then use . . . and list last author [APA p. 198; <i>Electronic Guide</i> p. 12]</p>	<p>Kallai, J., Makany, T., Csatho, A., Karadi, K., Horvath, D., Kovacs-Labadi, B., . . . Jacobs, J. W. (2007). Cognitive and affective aspects of thigmotaxis strategy in humans. <i>Behavioral Neuroscience</i>, 121, 21-30.</p> <p>https://doi.org/10.1037/0735-7044.121.1.21</p>
<p>C6 Scholarly journal article, with article number</p>	<p>Norouzi, N., Bhakta, H. C., & Grover, W. H. (2017). Sorting cells by their density. <i>PLoS ONE</i>, 12, 1-16. https://doi.org/10.1371/journal.pone.0180520</p> <p>NOTE: Some journals provide an article number (e.g., 0180520), but you do not include it in your reference. If an article does not have page numbers, continue to the next part of the reference list entry.</p>
<p>C7 Scholarly journal article, in press, retrieved from the web [<i>Electronic Guide</i> p. 13]</p>	<p>Baum, D. (in press). The origin and early evolution of life in chemical composition space. <i>Journal of Theoretical Biology</i>. Retrieved from https://doi.org/10.1016/j.jtbi.2018.08.016</p>
<p>C8 Cochrane Database of Systematic Reviews, from a library database</p>	<p>Bohren, M. A., Hofmeyr, G. J., Sakala, C., Fukuzawa, R. K., & Cuthbert, A. (2017). Continuous support for women during childbirth. <i>Cochrane Database of Systematic Reviews</i>, 2017(7). https://doi.org/10.1002/14651858.CD003766.pub6</p>
<p>C9 Newspaper article, with author, on the web, not from a library database [APA pp. 200-201; <i>Electronic Guide</i> p. 9]</p>	<p>Harris, M. (2011, August 16). Grades improve if classes start later, studies find. <i>The Calgary Herald</i>.</p> <p>Retrieved from https://calgaryherald.com/</p>
<p>C10 Newspaper article, author <u>unknown</u>, on the web, not from a library database [APA p. 200]</p>	<p>Ancient tool makers discovered fire treatment. (2009, August 13). <i>The Globe and Mail</i>. Retrieved from https://www.theglobeandmail.com/</p>

C11 News story on media website, author unknown (e.g., CBC, BBC, CNN) [APA Style Blog]	Raccoon in Banff eludes Parks Canada staff. (2017, October 28). Retrieved from http://www.cbc.ca/news/Canada/Calgary/Banff-national-park-raccoon-1.4377055
C12 Magazine article with author, print version [APA p. 200]	Singer, P. (2011, August). Visible man: Ethics in a world without secrets. <i>Harper's Magazine</i> , 323(1935), 31-36.
C13 Magazine article, with author, web version [APA p. 200]	Wells, P. (2009, July 28). Our universities can be smarter. <i>Maclean's</i> , 122(29/30). Retrieved from https://www.macleans.ca/
C14 Review of book, in a magazine, from a library database, no DOI [APA p. 209]	Klein, N. (2002, December 16). The new apartheid [Review of the book <i>We are the poor: Community struggles in post-apartheid South Africa</i> , by A. Desai]. <i>Nation</i> , 275(21), 25-28.

D. Websites

D1 Webpage on website, with author [APA p. 192, 205]	Sah, P. (2018). Study habits for success: Tips for students. Retrieved August 23, 2018, from http://theconversation.com/study-habits-for-success-tips-for-students-89147 NOTE: A retrieval date is required because the content of a webpage can change over time.
D2 Webpage on website, group or corporate author, no date [APA pp. 192, 205-206]	World Health Organization. (n.d.). Electromagnetic fields (EMF): Research agenda. Retrieved July 17, 2018, from http://www.who.int/peh-emf/research/agenda/en/ NOTE: For an organization with an acronym, write its name in full on the reference list, and do not include its acronym (APA Style Blog, October 28, 2015).
D3 Document on a website, group or corporate author [APA pp. 206]	Canadian Nurses Association. (2017). <i>Code of ethics for registered nurses</i> . Retrieved from https://www.cna-aicc.ca/html/en/Code-of-Ethics-2017-Edition/files/assets/basic-html/page-1.html NOTE: A retrieval date is not required because the content of documents (e.g., PDFs) posted to a website is not likely to change.
D4 Multiple pages from a single website, same author, same year [APA Style Blog, Oct. 20, 2011]	The Mustard Seed. (n.d.-a). About us. Retrieved May 30, 2019, from https://theseed.ca/about-us/ The Mustard Seed. (n.d.-b). Services. Retrieved May 30, 2019, from https://theseed.ca/services/ The Mustard Seed. (n.d.-c). Take action. Retrieved May 30, 2019, from https://theseed.ca/take-action/ NOTE: You need a separate entry for each individual webpage on a website. Put the entries in alphabetical order by the title of the page (e.g., "About us"), and add a, b, c... to the year (e.g., 2017a). If the year is not known, then insert a hyphen after n.d. (i.e., n.d.-a). An example

	<p>of an in-text citation for the first entry above would be (The Mustard Seed, n.d.-a, "30 Years," para. 3).</p>
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E. Other Kinds of Information Sources

<p>E1 Government report, publisher is same as author, print version [APA p. 205]</p>	<p>Alberta Social Services and Community Health. (2005). <i>Breaking the pattern: Understanding wife abuse</i>. Edmonton, Canada: Author.</p>
<p>E2 Government report on a website, with author [APA p. 205]</p>	<p>Sosiak, A. (1999). <i>Evaluation of recent trends in water quality in the Elbow River upstream from Glenmore Reservoir</i>. Retrieved from Alberta Environment and Sustainable Resource Development website: https://open.alberta.ca/publications/0778514714</p>
<p>E3 Report (found on website) by organization that is part of a larger entity (larger entity listed 1st) [APA pp. 205 (#31)-206 (#32)]</p>	<p>U.S. Department of Health and Human Services, Office on Women’s Health. (2017). <i>Final report: Opioid use, misuse, and overdose in women</i>. Retrieved from https://www.womenshealth.gov/files/documents/final-report-opioid-508.pdf</p>
<p>E4 Table on Statistics Canada website [APA p. 211]</p>	<p>Statistics Canada. (2018). Canadian health characteristics, annual estimates [Table]. Retrieved from https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310009601</p>
<p>E5 Government data set, on a website [APA p. 211; APA Style Blog]</p>	<p>Statistics Canada. (2017). <i>Mother tongue (10), age (27) and sex (3) for the population of Canada, provinces and territories, census divisions and census subdivisions, 2016 census</i> [Data set]. Retrieved from https://www12.statcan.gc.ca/census-recensement/index-eng.cfm</p>
<p>E6 Canadian legislation on a website [not covered in APA; refer to NOTE]</p>	<p><i>Criminal Code</i>, RSC 1985, c C-46 NOTE: The <i>Canadian Guide to Uniform Legal Citation 8th Edition</i> (2014) is available in the MRU Library.</p>
<p>E7 ERIC document with Document Reproduction Service number identified [Electronic Guide p. 31]</p>	<p>Beswick, D. M., Chuprina, L., & Canipe, J. B. (2002). <i>Investigating self-directed learning in culture, learning styles and creativity</i>. Retrieved from ERIC database. (ED473804).</p>
<p>E8 Report from Euromonitor in Passport GMID database</p>	<p>Euromonitor. (2017). <i>Consumer lifestyles in Canada</i>. Retrieved from Passport GMID database.</p>
<p>E9 Brochure, corporate author, publisher is same as author [APA p. 186]</p>	<p>Family Counselling Centre. (2003). <i>Dealing with a delinquent student</i> [Brochure]. Calgary, Canada: Author.</p>
<p>E10 Class handouts or slides (ppt) on course Blackboard site [APA pp. 205-206]</p>	<p>Samuels, M. (2010). <i>Midterm review points</i>. Retrieved from Mount Royal University PSYC1105 Blackboard website: http://courseware.mymrc.ca/courses/1/PSYC-2200-081_Psychology_200301/content/midterm_Review_Points.doc NOTE: A handout/ppt posted on Blackboard may also be cited as personal communication, so check how your instructor wants it cited.</p>

E11 Lab manual, print version [APA pp. 211-212]	Department of Biology. (2015, Fall). <i>BIOL 1204 lab manual</i> . Calgary, Canada: Mount Royal University.
E12 Lab manual, online, for a single lab, posted on course Blackboard site [APA pp. 204, 211-212]	Department of Biology. (2017, Fall). Lab 1 – Phylogenetics. In <i>BIOL 1204 lab manual</i> . Retrieved from Mount Royal University BIOL1204 Blackboard website: https://courseware.mymru.ca/blackboard/execute/content/file?cmd=view&content_id=3926888_1&course_1

E13 Nursing Practice Reference Guide [APA pp. 249, 251]	School of Nursing & Midwifery. (2018). <i>Bachelor of Nursing reference guide</i> . Calgary, Canada: Mount Royal University.
E14 Image on a website, with photographer, date and title [Electronic Guide p. 27]	Mylayne, J.-L. (2017). <i>Together</i> [Photograph]. Retrieved from https://www.moma.org/collection/works/273229?locale=en&page=1&with_images=true NOTE: Use the same format for a painting but change to [Painting]. Check if your instructor wants a parenthetical citation or a figure note under the image (see Chapter 5.21 of the <i>APA Manual</i>). Also, use images for which the creator has given permission. Consult the MRU Copyright guide for more information: http://libguides.mtroyal.ca/copyright
E15 Image on a website, no photographer, no title, no date [Electronic Guide p. 27]	[Photo of Mount Royal University personal trainer with client]. (n.d.). Retrieved July 2, 2019, from https://www.mtroyal.ca/CampusServices/Recreation/PersonalTraining/index.htm NOTE: If the image does not have a title, begin the citation with a description in brackets [] of the image.
E16 Image from an online article [Electronic Guide p. 27]	Frare, T. (1990). <i>David Kirby on his deathbed, Ohio, 1990</i> [Photograph]. Retrieved from http://time.com/3503000/behind-the-picture-the-photo-that-changed-the-face-of-aids/
E17 Audio or video podcast [Electronic Guide p. 27]	Luksic, N., & Howell, T. (Producers). (2017, July 10). <i>The open mind: Are 'unconscious' patients more conscious than we think?</i> [Audio podcast]. Retrieved from http://www.cbc.ca/radio/ideas/the-open-mind-are-unconscious-patients-more-conscious-than-we-think-1.3564615
E18 Blog post [APA p. 186; Electronic Guide p. 2]	Webber, S. (2007, July 11). Survey of plagiarism penalties [Blog post]. Retrieved from http://information-literacy.blogspot.com/2007/07/this-was-published-last-month-tenant-p.html

<p>E19 Twitter, tweet, or Twitter moment (also use for other social media) [APA p. 215; <i>Electronic Guide</i> p. 33]</p>	<p>Angelou, M. [DrMayaAngelou]. (2013, June 9). You can only become truly accomplished at something you love [Tweet]. Retrieved from https://twitter.com/DrMayaAngelou/status/343844424767389696/</p> <p>NOTE: Include both the author’s real name and [screen name]. If no real name is available, use the screen name without []. Also, put the type of source in [] after the title, e.g., [Twitter moment], [Blog comment], [Facebook status update], [Infographic], etc.</p>
<p>E20 YouTube or video weblog, author unknown [APA p. 215; <i>Electronic Guide</i> p. 28]</p>	<p>Real Grumpy Cat. (2012, September 25). <i>The original Grumpy Cat!</i> [Video file]. Retrieved from http://www.youtube.com/watch?v=INscMGmhmX4</p> <p>NOTE: Include both the real name and [screen name] of the person who posted the video as the author. If no real name is available, use the screen name without [].</p>
<p>E21 TED Talk, author known [APA p. 215; <i>Electronic Guide</i> p. 33]</p>	<p>Anholt, S. (2014, June 23). <i>Which country does the most good for the world?</i> Retrieved from www.ted.com/talks/simon_anholt_which_country_does_the_most_good_for_the_world</p> <p>NOTE: The author is the person(s) giving the TED talk. For the in-text citation when you are quoting the speech, include the timestamp in place of a page number, e.g., The policy advisor stated that “these governments are cultural psychopaths” (Anholt, 2014, 5:15).</p>
<p>E22 Motion picture with producer and director identified [APA p. 209]</p>	<p>Brandt, F. (Producer), & Messina, P. F. (Director). (1995). <i>Too smart for strangers</i> [Motion picture]. Burbank, CA: Walt Disney Home Video.</p>

5. Modern Language Association

5.1. Definition

Founded in 1883, the MLA is a leading academic professional organisation in the US that promotes scholarship of languages and literature.

Aside from its major yearly convention, the MLA publishes academic journals, such as *Publications of the Modern Language Association of America*. The MLA also publishes its guidelines for documenting sources. Geared towards high school and undergraduate students, the *MLA Handbook* is in the eighth edition came out in spring 2016. You likely used this in your high school and college English classes.

5.2. Who Uses MLA Style, and What for?

MLA style is mainly used by students in English and the Humanities. It is most commonly used to cite sources within the language arts, cultural studies, and other humanities disciplines.

MLA style is a system for documenting sources in scholarly writing. For over half a century, it has been widely adopted for classroom instruction and used throughout the world by scholars, journal publishers, and academic and commercial presses.

MLA style is widely used by schools, academic departments, and instructors. It is especially used in the humanities, such as, according to Purdue University's writing lab:

- English Language and Literature
- Foreign Language and Literature
- Literary Criticism
- Comparative Literature
- Cultural Studies

MLA style provides writers with a system for cross-referencing their sources from their parenthetical references (in-text citations) to their "Works Cited" page (bibliography). This cross-referencing system allows readers to locate the publication information of source material.

Other disciplines use other style guidelines, such as *APA style*, from the American Psychological Association (APA). Scholars in such fields as psychology, education, and social sciences favor this style guide.

5.3. What are some basic guidelines in MLA style?

An in-text citation is used when you are directly quote a text or citing a resource as evidence for a claim or example.

The basic *MLA style* format for an in-text citation of a book places, in parentheses, the last name of the author followed, without a comma, by the page number for the quoted or cited material, finished with a period outside the closed parenthesis. So: (Last Name #). If the author is mentioned in context, leave out their last name from the parenthetical reference.

Here's an example for a citing a book:

- "I am an invisible man" is a profound statement of how society refuses to see black people (Ellison 3).
- When Ralph Ellison's narrator says he's an "invisible man," he is commenting on his social invisibility as a black man in society (3).

With this information, the reader can then learn more about the source in the Works Cited page. Here's an example entry for our book example above:

- Ellison, Ralph. *Invisible Man*. Vintage International, 1995.
- Generalized: Author's Last Name, Author's First Name. *Title*. Publisher, Year of Publication.

This is a list of all the sources you have used to research your paper.

1. The list of works cited appears on a separate page at the end of the essay. It is titled (centred, no quotation marks, no underline):

Works Cited

2. The list is arranged alphabetically by the author's last name, or, if there is no author, by the first word in the title. When arranging the list ignore, but do not omit, "The", "An"

or “A” at the beginning of the title.

3. After the first line each entry is indented ½ inch or 5 spaces. This is called a hanging indent.
4. Each entry presents information in a specific order: the author’s name, the title, the publication information.
5. Double-space the entire list, both between and within entries.
6. If a book does not give the publisher, or the date of publication, then give what information you might know in square brackets [].
7. Each citation in a works cited lists ends with a period.
8. Citations must appear both in the text of your paper (in-text citations) and in the works cited list at the end of your paper.
9. With a few exceptions, the punctuation for citations in the works cited list is restricted to commas and periods and follows a format. Periods are used after the author, after the title of the source, and at the end of the information for each container. Commas are used in the author's name and between elements within each container.

Books

Book, One Author

Reference	Alexis, Andre. <i>Fifteen Dogs: An Apologue</i> . Coach House Books, 2015.
In-Text	(Alexis 58)

Book, Editions of a Book

Reference	Lutgens, Frederick K., and Edward J. Tarbuck. <i>The Atmosphere: An Introduction to Meteorology</i> . 13th ed., Pearson, 2016.
In-Text	(Lutgens and Tarbuck 219)

Book, Edited

Reference	Bartol, Curt R., and Anne M. Bartol, editors. <i>Current Perspectives in Forensic Psychology and Criminal Behavior</i> . 4th ed., Sage, 2016.
In-Text	(Bartol and Bartol 78)

Book, Corporate Author

Reference	Canadian Health Information Management Association. <i>Fundamentals of Health Information Management</i> . Canadian Healthcare Association, 2013
In-Text	(Canadian Health Information Management Association 87)
Comments	"When a work's author and publisher are separate organizations, give both names, starting the entry with the one that is the author. When an organization is both author and publisher, begin the entry with the work's title, skipping the author element, and list the organization only as publisher." (MLA Handbook, 8th ed., p. 104)

Book, No Author

Reference	<i>American Heritage Dictionary for Learners of English</i> . Houghton, 2002.
In-Text	(<i>American Heritage</i> 49)
Comments	"When a work is published without an author's name, do not list the author as "Anonymous." Instead, skip the author element and begin the entry with the work's title." (MLA Handbook, 8th ed., p. 24). If there are other contributor's such as translators, they would come after the title of the book. "When an entry in the works-cited list begins with the title...your in-text citation contains the title. The title may appear in the text itself or abbreviated, before the page number in parenthesis." (MLA Handbook, 8th ed., pp. 55-56).

Book, Three or More Authors

Reference	Guttman, B., et al. <i>Genetics: A Beginner's Guide</i> . Oneworld, 2002.
In-Text	(Guttman et al. 77)
Comments	"If the source has three or more authors, the entry in the works cited list begins with the first author's name followed by <i>et al</i> . The in-text citation follows suit." (MLA Handbook, 8th ed., p. 116) In the example above, the book does not provide the full first names of the authors. If only the first initial is provided, add that to your citation.

Book, Book in Translation

Format	Author's Last Name, First Name. <i>Title of Book</i> . Other contributors, Publisher, Publication Date.
Reference	Paz, Octavio. <i>In Light of India</i> . Translated by Eliot Weinberger, Harcourt, 1997.
In-Text	(Paz 37)
Comments	This example shows a citation highlighting other contributors (the translator). This format could also be used to highlight roles such as illustrators or adaptors etc. (MLA Handbook, 8th ed., p. 37)

Book, Chapters and Works in Anthologies with an Author

Reference	Brant, Beth. "Coyote Learns a New Trick." <i>An Anthology of Canadian Native Literature in English</i> , edited by Daniel David Moses and Terry Goldie, Oxford UP, 1992, pp. 148-150.
In-Text	(Brant 149)

Book, Chapters and Works in Anthologies without an Author

Reference	"Is Abortion Immoral?" <i>Taking Sides: Clashing Views on Bioethical Issues</i> , edited by Carol Levine, 14th ed., McGraw Hill, 2012, pp. 136-137.
In-Text	("Is Abortion Immoral?" 137)

Book, From a Website

Reference	Seton, Ernest Thompson. <i>The Trail of the Sandhill Stag</i> . Charles Scribner's Sons, 1914. <i>Project Gutenberg</i> , www.gutenberg.org/ebooks/32319 . Accessed 14 Jan. 2018.
In-Text	(Seton 6)

Library eBook

Reference	Fraihat, I. <i>Unfinished Revolutions: Yemen, Libya, and Tunisia after the Arab Spring</i> . Yale UP, 2016. <i>ebrary</i> , orca.douglascollege.ca/record=b1940699~S9 . Accessed 14 Nov. 2016.
In-Text	(Fraihat 76)
Reference	Barrett, Louise. <i>Beyond the Brain: How Body and Environment Shape Animal and Human Minds</i> . Princeton UP, 2011. <i>MyiLibrary</i> , orca.douglascollege.ca/record=b1865693~S9 . Accessed 14 Sept. 2016.

In-Text	(Barrett 189)
Comments	Use the permanent link to the eBook but omit http:// or https://

Encyclopedias and Dictionaries

Encyclopedia or Dictionary Entry, (Online) with an Author

Reference	Friesen, Gerald. "Assiniboia." <i>The Canadian Encyclopedia</i> , 3 Apr. 2015, <i>Historica</i> Canada. www.thecanadianencyclopedia.com/en/article/assiniboia/ . Accessed 29 July 2016.
In-Text	(Friesen)

Encyclopedia or Dictionary Entry, (Online) without an Author

Reference	"Maelstrom." <i>Merriam-Webster Dictionary</i> , 2017, <i>Merriam-Webster</i> . www.merriam-webster.com/dictionary/maelstrom . Accessed 19 Oct. 2016.
In-Text	("Maelstrom")

Encyclopedia or Dictionary Entry, (Print) with an Author

Reference	Lewisohn, Leonard. "Sufism." <i>Encyclopedia of Philosophy</i> , edited by Donald Borchert, 2nd ed., vol. 9, Thomson Gale, 2006, pp. 300-314.
In-Text	(Lewisohn 307)

Encyclopedia or Dictionary Entry, (Print) without an Author

Reference	"Mystic." <i>Oxford Concise Dictionary of Phrase and Fable</i> , edited by Elizabeth Knowles, Oxford UP, 2003, p. 349.
In-Text	("Mystic" 349)

Articles

Journal, Article (Print)

Reference	Conatser, Phillip, and Martin Block. "Aquatic Instructors' Beliefs Toward Inclusion." <i>Therapeutic Recreation Journal</i> , vol. 35, no. 2, 2001, pp. 170-184.
In-Text	(Conatser and Block 177)

Journal, Article from a Library Database without a DOI

Reference	Williams, George R. "What Can Consciousness Anomalies Tell Us about Quantum Mechanics?" <i>Journal of Scientific Exploration</i> , vol. 30, no. 3, 2015, pp. 326-354. <i>Academic Search Complete</i> , 0-search.ebscohost.com.orca.douglascollege.ca/login.aspx?direct=true&db=a9h&AN=1 18525144&site=ehost-live&scope=site. Accessed 6 Nov. 2016.
In-Text	(Williams 344)
Comments	<p>Always use a DOI number if one is available. Otherwise use a URL. Use a persistent link or stable URL for the article if one is available and remove the beginning "http://" or "https://" from the link in your citation. For instructions on persistent links, go to the Douglas College Library home page and click on A-Z at the top of the page (and then P, Persistent links).</p> <p>This example is from Academic Search Complete (an Ebsco database). If you are using one of the Ebsco databases, on the right side of the screen, under Tools, click on Permalink. The Permalink (persistent) link will be displayed above the title of the article. Click in the box to select and highlight the link and then copy that link. Paste this URL into the citation.</p> <p>Remember to remove the beginning "http://" or "https://" from the link in your citation.</p>

Journal, Article from a Library Database with a DOI (Multiple Authors)

Reference	Rabb, Nathaniel, et al. "Truths About Beauty and Goodness: Disgust Affects Moral but not Aesthetic Judgments." <i>Psychology of Aesthetics, Creativity and the Arts</i> , vol. 10, no. 4, 2016, pp. 492-500. <i>PsycINFO</i> , doi:10.1037/aca0000051. Accessed 12 Nov. 2016.
In-Text	(Rabb et al. 494)
Comments	"When possible, cite a DOI (preceded by doi:) instead of a URL. (MLA Handbook, 8th ed., p. 110) "If the sources has three or more authors, the entry in the works cited list begins with the first author's name followed by et al. The in-text citation follows suit." (MLA Handbook, 8th ed., p. 116)

Journal, Article from the Internet

Reference	Cianciolo, Patricia K. "Compensating Nuclear Weapons Workers and Their Survivors: The Case of Fernald." <i>Michigan Family Review</i> , vol. 19, no. 1, 2015, pp. 51-72, quod.lib.umich.edu/m/mfr/4919087.0019.103?rgn=main;view=fulltext. Accessed 21 Sept. 2016.
In-Text	(Cianciolo 61)

Magazine Article from a Library Database

Reference	Agren, David. "Here Comes the Rain Again." <i>Maclean's</i> , vol. 124, no. 29, 8 Aug. 2011, p. 43. <i>CBCA Complete</i> , 0-search.proquest.com.orca.douglascollege.ca/docview/879703108?accountid=10545. Accessed 14 July 2016.
In-Text	(Agren 43)
Comments	<p>Always use a DOI number if one is available. Otherwise use a URL. Use a persistent link or stable URL for the article if one is available and remove the beginning "http://" or "https://" from the link in your citation. For instructions on persistent links, go to the Douglas College Library home page and click on A-Z at the top of the page (and then P, Persistent links).</p> <p>This example is from CBCA Complete (a ProQuest databases). To access an article's persistent link in a ProQuest database, find the article and click on Citation/Abstract (not the Full text or PDF link). Near the bottom of the page, copy the link next to Document URL. Paste this URL into the citation. Remember to remove the beginning "http://" or "https://" from the link in your citation.</p>

Magazine, Article (Internet)

Reference	Miller, Laura. "The Evolutionary Argument for Dr. Seuss." <i>Salon</i> , 18 May 2009, www.salon.com/2009/05/18/evocriticism/. Accessed 29 Nov. 2016.
In-Text	(Miller)

Magazine, Article (Print)

Reference	Bolster, Mary. "Energize Your Life." <i>Natural Health</i> , Mar. 2009, p. 10.
In-Text	(Bolster 10)

Newspaper, Article from a Library Database

Reference	Zacharias, Yvonne. "Robofuture." <i>The Vancouver Sun</i> , 6 Aug. 2004, p. F1. <i>Canadian Newsstream</i> , 0- search.proquest.com.orca.douglascollege.ca/docview/ 242295984?accountid=10545. Accessed 15 July 2016.
In-Text	(Zacharias F1)
Comments	To access an article's persistent link in Canadian Newsstream, find the article and click on Abstract/Details (not the Full text link). Near the bottom of the page, copy the link next to Document URL. Paste this URL into the citation. Remember to remove the beginning "http://" or "https://" from the link in your citation.

Newspaper, Article from the Internet

Reference	Skerritt, Jen. "Local Liver Specialists Struggle to Keep up with Hep-C Influx." <i>Winnipeg Free Press</i> , 20 May 2009, www.winnipegfreepress.com/arts- and-life/life/local- liver-specialists-struggle-to-keep-up-with-hep-c- influx-45462112.html. Accessed 28 Dec. 2016.
In-Text	(Skerritt)

Newspaper, Article (Print)

Reference	Fayerman, Pamela. "Body Degrates as Patients Wait." <i>The Vancouver Sun</i> , 3 June 2005, p. A12.
In-Text	(Fayerman A12)

Newspaper, Article – No Author (Print)

Reference	"Oval Distinguished for Innovative Design." <i>The Vancouver Sun</i> , 16 May 2009, p. A14.
In-Text	("Oval Distinguished" A14)

Websites

Date of Access

The Date of Access is an **optional** element in MLA 8th edition. The MLA Handbook 8th edition states "since online works typically can be changed or removed at any time, the date on which you accessed online material is often an important indicator of the version you consulted." (MLA Handbook, 8th ed. p.

53) The Douglas College library has opted to include the date of access for online material.

When providing the URL, copy the full URL from your browser but do not include the http:// or https:// (MLA Handbook, 8th ed., page 110)

Website

Reference	Galewitz, Phil. "In Depressed Rural Kentucky, Worries Mount Over Medicaid Cutbacks." <i>NPR</i> , 19 Nov. 2016, www.npr.org/sections/health-shots/2016/11/19/502580120/in-depressed-rural-kentucky-worries-mount-over-medicaid-cutbacks . Accessed 21 Nov. 2016.
In-Text	(Galewitz)
Comments	"When a source has no page numbers or any other kind of part number, no number should be given in a parenthetical citation. Do not count unnumbered paragraphs or other parts." (MLA Handbook, 8th ed., p. 56)
Reference	Valki, Cathy. "Pesticides and Your Health - A Family Physician's Perspective." <i>David Suzuki Foundation</i> , 25 Feb. 2010, www.davidsuzuki.org/blogs/docs-talk/2010/02/pesticides-and-your-health---a-family-physicians-perspective/ . Accessed 17 Oct. 2016.
In-Text	(Valki)
Reference	"Drugged Driving by the Numbers." <i>MADD</i> , 2015, www.madd.org/drugged-driving/drugged-driving-by-the.html . Accessed 18 June 2016.
In-Text	("Drugged Driving")

Comments	If there is no personal author, start the citation with the title of the document/website. (MLA Handbook, 8th ed., p. 24)
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Reference	"Four Main Components for Effective Outlines." <i>OWL Purdue Online Writing Lab</i> , 2016, owl.english.purdue.edu/owl/resource/544/01/. Accessed 21 June 2016.
In-Text	("Four Main")
Reference	Ellis, Ralph. "Dakota Pipeline: Army Corps Orders Protesters Out." <i>CNN</i> , 25 Nov. 2016, www.cnn.com/2016/11/25/us/dakota-pipeline-access-army-corps/index.html. Accessed 25 Nov. 2016.
In-Text	(Ellis)

Wikipedia, Articles

Reference	"Hypnosis." <i>Wikipedia</i> , 26 Nov. 2016, en.wikipedia.org/wiki/Hypnosis. Accessed 26 Nov. 2016.
In-Text	("Hypnosis")

Blog Post

Reference	Minchilli, Elizabeth. "Eating Outside in Rome." <i>Elizabeth Minchilli in Rome</i> , 13 April 2016, www.elizabethminchilliiinrome.com/2016/04/eating-outside-rome/. Accessed 18 July 2016.
In-Text	(Minchilli)

Government Documents

Document Where the Author is also the Publisher

Reference	<i>Agriculture in Harmony with Nature: Agriculture and Agri-Food Canada Sustainable Development Strategy 2001-2004</i> . Agriculture and Agri-Food Canada, 2001, publications.gc.ca/collections/Collection/A22-166-1-2001E.pdf . Accessed 12 Dec. 2016.
In-Text	(<i>Agriculture in Harmony</i> 18)
Comments	"When a work's author and publisher are separate organizations, give both names, starting the entry with the one that is the author. When an organization is both author and publisher, begin the entry with the work's title, skipping the author element, and list the organization only as publisher." (MLA Handbook, 8th ed, p. 104)

Government Document where the Author is also the Publisher

Reference	<i>Canada's Greenhouse Gas Emissions: Understanding the Trends, 1990-2006</i> . Environment Canada, 2008, publications.gc.ca/collections/collection_2009/ec/En81-4-2006-2E.pdf . Accessed 19 Jan. 2017.
In-Text	(<i>Canada's Greenhouse</i> 17)

Government Document with a Personal Author (Statistics Canada)

Reference	Pearson, Caryn. "The Impact of Mental Health Problems on Family Members." <i>Statistics Canada</i> , 7 Oct. 2015, www.statcan.gc.ca/pub/82-624-x/2015001/article/14214-eng.pdf . Accessed 19 Nov. 2016.
In-Text	(Pearson 4)
Comments	When providing the URL, copy the full URL from your browser but do not include the http:// or https:// (MLA Handbook, 8th ed., p. 110)

Government Document - Print

Reference	<i>Information Use by the Ministry of Health in Resource Allocation Decisions for the Regional Health Care System</i> . Office of the Auditor General of British Columbia, 2002.
In-Text	(<i>Information Use</i> 22)

Audio Visual Materials

Film, DVD, Video

To cite the film:

Reference	<i>The Grand Budapest Hotel</i> . Directed by Wes Anderson. Performance by Ralph Fiennes, Twentieth Century Fox Home Entertainment, 2014.
In-Text	(<i>Grand Budapest</i> 01:18:29-49)
Comments	"If you are writing about a film or television series without focusing on an individual's contribution, begin with the title. You can include information about the director and other key participants in the position of other contributors." (MLA Handbook, 8th ed., p. 24) For audio visual material which is time-based , "cite the relevant time or range of times. Give the numbers of the hours, minutes, and seconds as displayed in your media player, separating the numbers with colons." (MLA Handbook, 8 th ed., p. 57)

To emphasize the performance of a director:

Reference	Moore, Michael, director. <i>Bowling for Columbine</i> . Alliance Atlantis, 2003.
In-Text	(Moore)
Comments	It is optional to include performers. MLA allows the writer to emphasize the focus of particular people responsible for a work. "If your discussion of such a work focuses on the contribution of a particular person - say, the performance of an actor or the ideas of the screenwriter - begin the entry with his or her name, followed by a descriptive label." (MLA Handbook, 8th ed., p. 24)

Streaming Video from a Website, YouTube etc.

Reference	Griggs, Ben. "A Day in the Life of a Librarian." <i>YouTube</i> , 1 Oct. 2013, www.youtube.com/watch?v=McN-B7X7HwQ . Accessed 9 Oct. 2017.
In-Text	(Griggs 00:02:26-27)
Comments	"For works in time-based media, such as audio and video recordings, cite the relevant time or range of times. Give the numbers of the hours, minutes, and seconds as displayed in your media player, separating the numbers with colons." (MLA 8th ed., p. 57)

Streaming Video (Films on Demand)

Reference	"The Long Shadow: Treasures of Ancient Greece." BBC Worldwide, 2015, <i>Films on Demand</i> , 0-fod-infobase-com.orca.douglascollege.ca/p_ViewVideo.aspx?xtid=95225. Accessed 25 Jan. 2017.
In-Text	("Long Shadow" 00:17:44-58)

Music - Sound Recordings

CD

Reference	Tragically Hip. <i>Road Apples</i> . MCA Records, 1991.
In-Text	(Tragically Hip)

Song on a CD

Reference	Cohen, Leonard. "Jazz Police." <i>I'm Your Man</i> . Columbia, 1988.
In-Text	(Cohen)

Photograph (Web)

Reference	Dobbs, Charles. "Zabriskie Point Sunset." <i>FineArtAmerica</i> , 7 Apr. 2016, fineartamerica.com/featured/zabriskie-point-sunset-charles-dobbs.html . Accessed 16 Dec. 2016.
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In-Text	(Dobbs)
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Podcast

Reference	<p>Kennedy, Paul. "Hope Within Horror: Marina Nemat." <i>Ideas</i>, CBC/Radio-Canada, 6 Dec.</p> <p>2016, www.cbc.ca/radio/ideas/hope-within-horror-marina-nemat-1.3470823.</p> <p>Accessed 12 Dec. 2016.</p>
In-Text	(Kennedy 00:14:11-47)

Course Packs, Class Handouts, Class Lectures

Course Pack, Journal Article Reprinted in

Reference	<p>Johnson, Victor. "A Labour of Love?: Mothers and Emotion Work." <i>NURS 3130: Supplementary Readings</i>, edited by Lucinda Robertson, Douglas College, 2016, pp. 30-44. Originally published in <i>Journal of Midwifery</i>, vol. 17, no. 10, 2009, pp. 636-640. Course Pack.</p>
In-Text	(Johnson 35)
Comments	<p>MLA does not give specific instructions on how to cite custom course packs. <u>It is always best to check with your instructor.</u> Our example is based on SFU's recommendation to treat the course pack as an anthology when they are reprinting articles, chapters etc. The instructor would be the editor with this approach.</p> <p>With reprints, MLA states "when a source was previously published in a form other than the one in which you consulted it, you might include information about the prior publication. (MLA 8th ed., p. 53)</p> <p>MLA states "If the source is an unexpected type of work, you may identify the type with a descriptive term. For instance, if you studied a radio broadcast by reading its transcript, the term <i>Transcript</i> will indicate that you did not listen to the broadcast. (MLA Handbook, 8th ed., p. 52). In the example above including Course Pack at the end of the citation will indicate the type of work.</p>

Class Handout

Reference	Smith, Donald. "Rhetorical Analysis." <i>ENGL 1130: Academic Writing</i> , Douglas College, Coquitlam, 14 Nov. 2016. Class Handout.
In-Text	(Smith)
Comments	Douglas College is the publisher core element in this example.

Class Lecture

Reference	Cannon, Dolores. "Accessing Theta." <i>PSYC 2341: Abnormal Psychology</i> , Douglas College, New Westminster, 28 Oct. 2016. Class Lecture.
In-Text	(Cannon)
Comments	This citation format was created using an example of an Address in the MLA Handbook, 8th ed., p. 52. If in doubt, check with your instructor.

Other Sources

Interviews Conducted by Yourself

Reference	Rewniak, Christopher. Personal Interview. 4 June 2017.
In-Text	(Rewniak)
Comments	"Personal interviews refer to those interviews that you conduct yourself. List the interview by the name of the interviewee. Include the descriptor Personal interview and the date of the interview." (Purdue Online Writing Lab, https://owl.english.purdue.edu/owl/resource/747/09/).

Brochures/Pamphlets

Reference	<i>Not Everyone Has a Home</i> . National Coalition for the Homeless. Pamphlet.
In-Text	(<i>Not Everyone</i>)
Comments	"When an organization is both author and publisher, begin the entry with the work's title, skipping the author element, and list the organization only as publisher." (MLA Handbook, 8th ed, p. 104) Often pamphlets do not provide publication dates. Do not include n.d. as was done in the past. MLA states "If the source is an unexpected type of work, you may identify the type with a descriptive term. For instance, if you studied a radio broadcast by reading its transcript, the term Transcript will indicate that you did not listen to the broadcast. (MLA Handbook, 8th ed., p. 52). In the example above Pamphlet is used to indicate the publication type.

Email

Reference	Selig, Pauline. "Re: Knowledge topics." Received by Russell Moore, 22 July 2016.
In-Text	(Selig)
Comments	"When you document an e-mail message, use its subject as the title. The subject is enclosed in quotation marks and its capitalization standardized." (MLA Handbook, 8th ed., p. 29)

Tweet

Reference	@persiankiwi. "We have report of large street battles in east & west of Tehran now - #Iranelection." <i>Twitter</i> , 23 June 2009, 11:15 a.m., twitter.com/persiankiwi/status/2298106072 .
In-Text	(@persiankiwi)
Comments	" Pseudonyms , including online usernames, are mostly given like regular author names." MLA Handbook, 8th ed., p. 24)

5.4.Citing Indirect Sources

"Whenever you can, take material from the original source, not a secondhand one. Sometimes, however, only an indirect source is available - for example, an author's published account of someone's spoken remarks. If what you quote or paraphrase is itself a quotation, put the abbreviation *qtd. in* ("quoted in") before the indirect source you cite in your parenthetical reference. (You may wish to clarify the relation between the original and secondhand sources in a note.)" (MLA Handbook, 8th ed. p. 124)

Lawrence Christy remarked that Lindsay Ryan had a "unique style of debate" (qtd. in Anderson 107).

For your list of works cited, give the indirect source (Anderson) not the source quoted (Christy).

5.5. In-Text Citations

In-text citations are intended to direct the reader clearly and easily to the full citation in the works cited list. These are references in the body of the paper that document quotations, paraphrases, and the direct use of information and ideas. They are used instead of footnotes or endnotes. They are sometimes called parenthetical references because the references appear in parentheses within the text of the essay.

The parenthetical references correspond to the list of works cited. In other words, the **information given in the parenthetical reference should make it absolutely clear to the reader which source is being referred to** in your list of Works Cited. In-text citations is typically composed of the author's surname (or whatever comes first in the citation in the works cited list) and a page number.

If your Works Cited includes only one title by a particular author or editor, you only need to place the author's last name and the relevant page number(s) without any intervening punctuation in your parenthetical reference.

Keep the references in parentheses as brief as possible. If you mention the author's name or the title of the source in your text, then you do not include that information in the parenthetical reference.

e.g. This point has been argued before (McMann 16-19).

McMann has argued this point (16-19).

Others, like Blocker and Plumer (52), hold an opposite point of view.

Stress and a poor diet can have a detrimental effect on proper liver functioning (American Medical Association 209).

If the work has three or more authors, follow the form in the bibliographic entry in your works cited list: give the author's last name followed by et al., without any intervening punctuation. (MLA Handbook, 8th ed., p. 116)

Give the first author's last name followed by "et al." then the page number(s).

e.g. Some interesting interpretations of this concept have recently been suggested (Jones et al. 25-37).

If there are citations to material by different authors with the same surname, add the author's first initial. If these authors have the same initial as well, use the full first name (MLA

8th ed., p. 55)

e.g. Neurological pathways are created through habitual actions (J. Stevens 87).

If there are two or more titles by the same author in your Works Cited list, give the author's last name, the title, followed by the page number(s). Abbreviate the title if it is longer than a few words. When abbreviating the title, begin with the first word. (MLA 8th ed., p. 55)

e.g. The fashion was very popular in certain parts of Northern England (Pollack, Dickinson 32- 33).

(In the example, 'Dickinson' is the shortened title of Pollack's Dickinson: The Anxiety of Gender).

If there is no author, the in-text citation would contain the title. “The title may appear in the text itself or, abbreviated, before the page number in the parenthesis.” (MLA 8th ed., p. 56)

e.g. *Classical Mythology of Greece* notes that he was cut up and boiled in a cauldron by Titans sent by Hera (78).

or

e.g. He was cut up and boiled in a cauldron by Titans sent by Hera (*Classical Mythology* 78).

Web documents usually do not have fixed page numbers or any kind of section numbering. If your online source does not have numbering, you have to omit numbers from your parenthetical references.

Do not count unnumbered paragraphs. (MLA Handbook, 8th ed., p. 56)

e.g. Winkfield compares it to the current political environment of Zimbabwe.

The works cited list would include an entry that begins with Winkfield.

If a source, such as a web document, does provide definite paragraph numbers, give the abbreviation par. or pars. or sections (sec., secs.) or chapters (ch., chs.) along with the paragraph number or numbers. (MLA 8th ed., p. 56)

e.g. Devereux states that “Finley introduced energy psychology to modern psychiatry in the late twentieth century” (par. 30).

For audio visual material which is time-based, “cite the relevant time or range of times. Give the numbers of the hours, minutes, and seconds as displayed in your media player, separating the numbers with colons.”

Buffy’s promise that “there’s not going to be any incidents like at my old school” is obviously not one on which she can follow through (“*Buffy*” 00:03:16-17).

(MLA 8th ed., p. 57)

5.6.Quotations

5.6.1. Short Quotations

- If a quotation runs no more than four lines, put it in double quotation marks and incorporate it into the text. Put single quotation marks around quotations that appear within those quotations.
- Punctuation marks such as periods, commas, and semicolons should appear after the parenthetical reference. Other punctuation such as question marks and exclamation marks should appear within the quotation marks if they are part of the quoted passage, but after the parentheses if they are part of your text. (MLA Handbook, 8th ed. pp. 75-76)

- *Examples*

Shelley thought poets “the unacknowledged legislators of the World” (794). Dorothea responds to her sister, “what a wonderful little almanac you are, Celia!” (7).

5.6.2. Long Quotations

- If a quotation runs to more than four lines in your paper, set it off from your text by beginning a new line, indenting half an inch from the left margin. For a single paragraph or part of a paragraph, do not indent the first line more than the rest of the quotation.
- Do not use opening and closing quotation marks.
- For long quotations, a period at the end of a quotation is placed before the parentheses.
- If starting a new paragraph within the block quotation, indent its first line.

- *Example*

At the conclusion of *Lord of the Flies*, Ralph, realizing the horror of his actions, is overcome by great, shuddering spasms of grief that seemed to wrench his whole body. His voice rose under the back smoke before the burning wreckage of the island; and infected by that emotion, the other little boys began to shake and sob too. (186)

(MLA Handbook, 8th ed. Pp. 76-77)

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